FLIGHT

The AIRCRAFT ENGINEER & AIRSHIPS

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Founder and Editor : STANLEY SPOONER

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DIARY OF CURRENT AND FORTHCOMING EVENTS

Club Secretaries and others desirous of announcing the dates of important fixtures are invited to send particulars for inclusion in this list—

1928
June 26-29 F.A.I. Annual Conference, Brussels
June 29— July 15 Paris Aeronautical Salon
June 29 .... Annual Dinner of R.A.F. Club
June 29 .... Royal Air Force Dinner Club, Sixth Annual Dinner at Connaught Rooms, 8 p.m.
June 30 .... Royal Air Force Display, Hendon
June 30 .... Gordon Bennett Balloon Race, Detroit, U.S.A.
June 30 .... American Inter-Collegiate Air Race
July 6-7 Blackpool Flying Meeting
July 20-21 King's Cup Race and Siddeley Trophy Tour, Hendon
July 20-22 Light Plane Meeting at Rotterdam
July — .... Aerial Derby
Aug. 4 .... Close of *Philadelphia Bulletin* Atlantic Flight Prize
Aug. 6 .... Air League Challenge Cup, Norwich

EDITORIAL COMMENT

The R.A.F. Display

IN British aviation circles there is practically but one topic of conversation this week : The Royal Air Force Display, which is to be held at the Hendon aerodrome on Saturday next. It is no slight on other flying events to say that the Display is *the* aviation event of the year. Nor is it at all strange that this should be so, for whereas flying meetings of the ordinary kind are private affairs, the R.A.F. Display is a *National* event ; one might even be forgiven for regarding it as an event of Imperial importance. Looked upon in the right spirit, the Display is a demonstration of the high degree of development and training to which our Air Force has attained, and in view of the vital importance to the nation, and indeed to the Empire, of our Air Defences, this is a subject which should concern every citizen very keenly. That the majority of visitors to the Display go to Hendon mainly to witness a spectacle is not unnatural, but as Major Robertson points out in his very illuminating article on the Display, in the special tinted section of this issue, it would be a pity if the thinking citizen came away merely feeling that he had seen an excellent "circus performance." There was a time when the general public took but little interest in flying, and that little chiefly confined to a head shake when it read of another flying accident. We still find people shaking their heads at flying accidents, but the attitude is gradually changing, and even the man in the street is beginning to differentiate between service accidents and accidents to civil aircraft, realising that there is a vast difference between the two forms of flying. The amazing evolutions carried out at the Display should, and we think do, help to show *how* great that difference is, and we believe that a very large percentage of the visitors to Hendon come away wondering, not that accidents occur in the R.A.F., but that *more* do not happen. If the man in the street can once be made to realise that such manœuvres are necessary, that they must in the very nature of things involve a good deal of risk, and that practising in peace time is vastly more risky than is the equivalent practising of the Army

and Navy, he will have gone a long way towards seeing the accidents list, regrettable as it is, in a truer perspective.

It has always been the custom of FLIGHT to publish in the week of the Display a special section dealing with the machines which will be taking part either in the Display itself or in the Fly-past, or " Parade," of new aircraft. This year we have attempted to give our readers a worthy souvenir of this year's Display by publishing a full-page photograph of every type of aircraft which will be seen at Hendon on Saturday. In doing so we hope we have produced an album which will be worth keeping ; one which will be of use actually at the Display, but which will also be worth retaining afterwards for reference, and as a perpetual reminder of what we believe is going to be the finest R.A.F. Display ever given.

While this pictorial souvenir will, we trust, appeal to all our readers, it was felt that a large proportion would wish to know something of the *raison d'etre* of so many various types, even within any single class of machine. Consequently, Maj. F. A. de V. Robertson has written an article on this subject, in which he propounds very lucidly and very interestingly the policy and considerations which have led to the production of the new service types that will be seen at Hendon for the first time. A study of this article will, we think, clear up many questions that may have been puzzling and obscure, and if FLIGHT should be found to have helped a little towards a better understanding of some of the considerations which govern the choice of aircraft and the allocation of their duties, the R.A.F. Display section which we present to our readers this week will have done something towards making the nation " air-minded."

Concerning the actual programme which has been drawn up for this year's display, we publish a few brief notes elsewhere. We make no apology for not having made the programme section more complete. A very well produced, and very interesting and instructive, official programme has been compiled by the Air Ministry, and will be on sale at the Display. This contains all the information concerning the various items, their sequence and nature, which a visitor needs to know to appreciate what is taking place, and as the proceeds of the sale of the official programme, like the proceeds of the display generally, go to various Royal Air Force charities, we feel sure that no FLIGHT reader visiting Hendon will grudge the price of the programme in addition to that of his (or her) ticket. The R.A.F. charities thoroughly deserve all the support that can be given them, and in compiling our special R.A.F. Display section we have attempted to avoid anything which might lessen to the least extent that support. Rather have we tried to make our R.A.F. Display souvenir complementary to the official programme, and to give such illustrations and material as the programme cannot well include in addition to its setting out of events, etc.

The attendance at the R.A.F. Displays has grown steadily. This year, quite apart from the fact that the events will be, we believe, better than ever before, there is special reason to support it. On April 1 this year the Royal Air Force celebrated its Tenth Anniversary, and it is very fitting that the public should make an endeavour to make the occasion memorable by ensuring that the proceeds to be given to R.A.F. charities far exceed anything that has been achieved in previous displays.

Let every FLIGHT reader who can possibly do so make a point of visiting Hendon on Saturday and gather with him his friends. Merely as a spectacle the display is the finest value for money imaginable. As an education it is unapproached. And it is to the benefit of R.A.F. charities. Surely reasons enough for breaking all records !

SATURDAY, JUNE 30. DON'T FORGET!

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Microbe Shooting from the Air

SHOOTING microbes from an aeroplane is the latest venture among aviators in the Royal Canadian Air Force. It has some of the fascination of a fast game, in addition to being an important undertaking for Canadian agriculture. For the past few years the Canadian Federal Department of Agriculture has been trying to combat wheat rust, which makes its appearance in the great wheat fields of Western Canada, by working from the ground. The Department has now enlisted the aid of the Royal Canadian Air Force. The airmen, including a technical expert in agricultural bacteriology, are provided with sensitised plates which are exposed to the air. The spores of wheat rust, floating at high altitudes, are caught on the plate and analysed. The spores have been detected at a height of 5,000 ft., and the fliers have run into clouds of these invisible organisms which have registered as many as 5,000 to the centimetre. The spores float at an altitude and when there is a rainstorm they are precipitated and thus the rust appears in widely separated areas and without any visible means of contact. The use of sensitised plates and the aeroplane has revealed how rust has spread in the past, and provides a means of checking one of the menaces to the wheat crop of western Canada and the western States.

Business First

FRAULEIN THEA RASCHE, the German airwoman, has been delayed from starting her Atlantic flight in a Bellanca monoplane from New York by Court proceedings concerning her contracts with previous backers.

Fairey Aircraft for Ireland

THE Irish Free State Air Force has ordered a number of Fairey III F machines from the Fairey Aviation Company as the initial movement in bringing its equipment up-to-date.

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R.A.F. Music in Canada

THE R.A.F. Band, under Flt.-Lieut. J. Amers, sailed for Canada, on June 21, to make a 91 days' tour in the Dominion. At Vancouver, the band will be greeted by a squadron of aeroplanes flying over the city in formation.

Woman Pilot Killed

MRS. C. TILLOTSON, the first woman pilot in Nebraska, U.S.A., was killed on June 23, after a nose-dive from 1,500 ft. when preparing to land.

Lieut. Bentley's Home Appointment

LIEUT. R. R. BENTLEY, A.F.C., who flew to the Cape and back in a D.H. " Moth " and is now in this country on his honeymoon, has accepted an appointment as instructor to the Liverpool and District Aero Club for three months. He will commence duties on June 30 and continue until September. He will be no stranger to the Hooton Park aerodrome, near Liverpool, for he was an instructor there whilst serving with the R.A.F.

New Private Owner

THE first member of the Nottingham Aero Club to become a private owner is Mr. Harold Ashworth, who owns an Avro " Avian," which he brought from Manchester recently with the Club instructor, Mr. B. Martin. It is his intention to use the machine for business purposes as he travels much, as well as for sport.

South African Clubs

ONE of the most interesting and active flying clubs in South Africa is the Port Elizabeth Light Aeroplane Club, Ltd., located at Port Elizabeth. They possess two machines, a Westland " Widgeon " and a D.H. " Moth," and employ a wholetime pilot instructor. Their aerodrome is the largest in S. Africa, measuring 1,000 × 1,000 in yards and is owned by the Municipality. The secretary is Mr. F. N. Ward Able and the publicity secretary, Mr. R. R. Fiddian Green.

FLIGHT

CAMBRIDGE UNIVERSITY AIR SQUADRON

Annual Attachment at Old Sarum

IN the Air Force List, following after the R.A.F. Educational Service, will be found two University Air Squadrons, Oxford and Cambridge. Each list shows a personnel of two officers of the regular service or the reserve, who are posted to these squadrons, a chief instructor and an instructor being allotted to each. This unusual entry smacks of mystery, and speeches made by the Secretary of State for War at Oxford and Cambridge have not altogether explained the situation. These squadrons are obviously not part of the Air Defences of Great Britain, nor of the Inland Area, nor the Coastal Area, nor the Special Reserve, nor the Auxiliary Air Force. It is equally certain that they have nothing to do with the Officers' Training Corps of the Territorial Army. The student of R.A.F. organisation scratches his head and wonders what in heaven's name these squadrons are.

THE CAMBRIDGE UNIVERSITY AIR SQUADRON AT OLD SARUM:—

Back row, left to right:—J. H. Dixon (Pembroke), D. Barnett (Clare), C. R. Wintringham (St. John's), J. F. Legard (Trinity), E. Booth (King's), R. W. Knight (Clare), J. S. Pringle (Caius), R. Harston (Trinity Hall), A. G. Douglas (Trinity Hall).

Middle Row, left to right:—A. M. Lester (Jesus), B. F. Cox (Jesus), L. Currie (Trinity Hall), R. W. Burkitt (Pembroke), R. C. Geddes (Caius), J. T. Horsfall (Trinity Hall), H. McCleery (St. Catherine's), D. M. Lynch-Staunton (Trinity), P. Booth (King's), J. B. Elliott (Trinity Hall), B. N. Thornely (Pembroke).

Seated, left to right:—Flight-Sergeant C. Hartley, Pilot Officer C. S. Ellison, Flying Officer C. H. A. Farnan, Flight-Lieut. R. V. Goddard, M.A. (Jesus), Wing-Commander Vernon S. Brown, M.A. (Jesus), Flight-Lieut. T. H. French, D.F.C., Flying Officer E. G. Hordern, Flying Officer R. R. Nash, Flying Officer N. H. N. Fletcher.

The mystery was explained by a recent visit to the Cambridge University Air Squadron at its annual camp or "attachment" at Old Sarum Aerodrome. The representatives of FLIGHT were most cordially and hospitably entertained by Wing-Commander V. S. Brown, the Chief Instructor (in reality the C.O., but his position has to be camouflaged) and Flight-Lieut. R. V. Goddard, who performs the duties of Adjutant. Both these officers are themselves Cambridge men.

On an open grassy space among the usual old army huts which convict the Air Ministry of gross architectural extravagance in the upkeep of all service aerodromes, were pitched a dozen bell tents. In these lived two dozen Cambridge undergraduates, or Bachelors of Arts, in quite sufficient comfort. As a further example of Air Ministry extravagance, four batmen (or is it six? No, I think four is the number) attend upon them. Their meals they take in the mess of the School of Army Co-operation and 16 (A.C.) Squadron. These Cantabs are not in uniform. They mostly go about in grey flannel trousers and the blazer of the C.U.A.S. They have no service rank and are described as "members" of the squadron. They receive no pay, but, on the contrary, each pays an annual subscription of £2 to the squadron. They have undertaken no military obligations, but are more like members of a club. In very truth they are "the legion that never was 'listed."

On the aerodrome were drawn up 10 aeroplanes—seven Avro "Lynxes" and three Bristol Fighters—each decorated with a light blue band round the fuselage and the arms of Cambridge University painted either on the side or (in the case of some Bristols) on the radiator. There are more machines kept in reserve. Some of the Bristols have slotted wings, and one had a Leitner-Watts metal propeller. These machines are kept hard at work, for, during the past fortnight, every member has averaged at least one hour's flying per diem. The machines are kept in flying trim by airmen from the Duxford Station Flight. In addition to the two officers posted to the squadron, three instructors from the same station flight are constantly busy teaching the members all about flying; while, during the attachment at Old Sarum, three more instructors are lent to the squadron. What with 24 hours' flying a day and all the ground instruction, these instructors have a very busy time indeed. It should be added that the members themselves take a hand in cleaning down the machines.

To appreciate the work of the squadron at Old Sarum, one should first grasp the organisation at Cambridge. It was founded in 1925 by the Air Ministry with the active assistance of the University. The chief instructor is a member of the University Senate. In Cambridge there is a ground-training centre at Fen Causeway, near the engineering laboratories. There instruction is given in

aircraft, engines, wireless, photography, navigation, armament, and instruments. A small wind tunnel is installed, and there is also a research laboratory. In this matter the squadron is giving active help to the University, for the Chair of Aeronautics is not equipped with a laboratory, and Professor Melville Jones uses that of the squadron of which he is an honorary member. A lecture room is also provided, which is fitted up as a reading room and aeronautical library, and members can get light refreshments there. Outside authorities give lectures there usually once a fortnight, and members are expected to attend these.

Flying training is carried out at Duxford, about nine miles away, on four afternoons a week during term time. The usual attendance of members is about 10 a day. During term time, no member of the University who is *in statu pupillari* is allowed to fly solo unless he is a qualified pilot. Quite a number of members have, however, earned their "tickets," and one, at least, is the owner of a D.H. 53.

Membership of the squadron (apart from honorary members) is limited to 75. The number could easily be doubled, for applications are far more numerous than vacancies. An applicant must have permission from his parents or guardians and from his tutor, and must pass a medical examination. The Chief Instructor is able to pick and choose, and his guiding principle is to select men who intend to take a serious interest in flying in their future lives. For instance, one member is a son of Sir Auckland Geddes, and, of course, a nephew of the chairman of Imperial Airways. Two others are members of the Booth family, of the Booth Shipping Line. Some members do not propose to become active pilots, but to devote themselves to aeronautical research. Wranglers and men with honours in science are included, and whether they intend to apply for service commissions or to engage in research, they will be valuable acquisitions to the cause of flying. The present 75 represent all the colleges of Cambridge, and are drawn from some 40 public schools—a very fine body of men.

For the past three years the squadron has been attached to the station at Old Sarum. The camp lasts for six weeks (this year from June 10 to July 21), and the members attend in three batches, each for a fortnight. All work extremely hard, and when flying is over for the day, there are cricket and tennis, etc., matches against the officers of the station for a challenge plate. Usually, everyone flies three times a day, but no instructional flight lasts more than half-an-hour. Solo flying is begun at Old Sarum, and more advanced pupils do cross-country flights.

Usually on one day a week the squadron is taken out to watch aircraft working with army units. One week they all went to Calshot to see Southamptons at work, and on another occasion they went to Felixstowe and had a flight in a Calcutta.

The following table shows the work of the squadron on one day. The 24 members present are divided into parts "A" and "B."

Routine for Thursday, June 21.

"A."	"B."
7.30 a.m., Breakfast.	7.30 a.m., Out Aircraft.
8.0 a.m., Flying.	8.0 a.m., Breakfast.
9.30 a.m., Cease Flying.	8.40 a.m., Camera Gun Practice in 16 Squadron machines.
9.45 a.m., Photograph (Group), 1st Batch.	
10.30 a.m., R.T. Practice in 16 Squadron machines.	10.15 a.m., Flying.
12.15 p.m. Luncheon.	
1.15 p.m., Flying.	1.30 p.m., R.T. practice in air.
2.40 p.m., Camera Gun Practice in air.	
4.30 p.m. Tea.	
5.0 p.m., Continuation of CRICKET *versus* STATION OFFICERS.	

CAMBRIDGE UNIVERSITY AIR SQUADRON AT OLD SARUM: The afternoon parade. Three Bristol Fighters and six Avro Lynx.

Now, perhaps, some troublesome economist may ask why public money is expended on what might be described as a flying club? The Air Ministry is amply justified in doing so.

In the first place, flying clubs are admittedly a worthy object for expenditure of public funds. In the second place, the amount spent on a University squadron is very small. In the third place, 40 members of the squadron are officers of the R.A.F. Reserve, though they may not use their rank while working with the squadron. Fourthly, a number of members apply for University commissions in the regular R.A.F. Three are applying this year, and six are expected to apply next year. On receiving a University commission, an officer who has taken a pass degree gets an antedate of 12 months, while an honours degree gives an antedate of 18 months. At present no limit has been placed upon the number of University commissions. The fact is that applications from the schools for Cranwell Cadet College have not been so numerous as could be desired. It is very important that the R.A.F. should be able to tap other sources of supply. After long experience the Army has found that Oxford and Cambridge provide officer material of the very highest quality, and the Royal Air Force also will certainly find that to be correct. No one who has seen the members of the C.U.A.S. in camp can have the least doubt of their quality.

F. A. de V. R.

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Capt. Oliver Vickers

AN aeroplane circled the grave when the late Capt. Oliver Henry Vickers, of Vickers, Ltd., was buried at Brookwood Cemetery, on June 20.

Tribute to Sir John Alcock

COMMANDER W. STULTZ and Mr. Gordon, the latest Atlantic airmen, flew to Manchester on June 23, from Croydon, and laid wreaths on the grave of Sir John Alcock, who made the first non-stop flight across the Atlantic. The Lord Mayor entertained them to lunch. They returned to London by air later, and were due to embark for America with Miss Earhart, on June 28. On June 22, the former were at dinner with the Royal Aero Club.

Aircraft to Co-operate with Liners

THE French Air Union and the White Star Line are jointly arranging a service of machines between Cherbourg and Paris in connection with the arrival of passengers at the French port, on June 29 and July 6, who wish to reach Paris quickly and save five hours.

FLIGHT

AIRISMS FROM THE FOUR WINDS.

Great Flying-Boat Cruise

THE four R.A.F. Southampton flying-boats engaged on the Far East and Australian cruise, reached Adelaide on June 22 from West Australia, and landed on the river in a rain squall. An unusual accident occurred to one of the Australian Supermarine flying-boats when it was preparing to take-off with the intention of meeting the R.A.F. machines 100 miles down the coast. In a squall it capsized in 13 ft. of water; the pilot, who was alone, springing clear.

Duchess of Bedford Still Delayed

THE Fokker monoplane, named "Princess Xenia," in which the Duchess of Bedford, Capt. Barnard and Mr. Alliot are flying to India and back, is still at Bushire. It is anticipated that the flight will be resumed about the second week in July.

Italian Arctic Expedition

THE situation of General Nobile's stranded expedition above Spitzbergen looks more hopeful this week. The General himself was rescued by Lieut. Lundborg in a Swedish seaplane on June 23, and is now on board his base ship, *Città di Milano*, suffering with a fractured leg. Lundborg flew back to the others on the ice floe the next day and, unfortunately, broke his undercarriage, and thus wants rescuing himself. Explaining why he was removed first, the General states that he opposed the plans, but his companions insisted on him going, and the Swedish pilot also insisted that his orders were to take him first. The floe where the party are stranded is 200 yards by 300 yards. Another member, Cecioni, is now reported rescued. Complete silence reigns over the fate of Nobile's crew, who were carried away in the airship.

There is no news yet of Capt. Amundsen and Major Guilbaud who left Tromso on June 18, in the Latham flying-boat which has twin Farman engines in tandem. They had 500 miles across sea to cover to reach King's Bay, Spitzbergen, but it was suggested that they continued to the north-east coast to instigate a search for Nobile at once. Wireless messages were thought to have been picked up from them by a ship, but have not been confirmed. Lieut. Sarko reached King's Bay to search by air. The explorer has now been adrift for ten days, and he was reported to have only a fortnight's rations on board when he left Tromso. The flying-boat in question was being prepared for an attempt on the Atlantic from France to New York, the pilot being Major Guilbaud.

French Air Manœuvres

ABOUT 53 French machines, belonging to the 34th Aviation Regiment, left Le Bourget, on June 21, for a four-day tour in France in massed formation. The departure was without incident. Five of the machines were occupied by the General Staff under the command of Col. Poli Marchetti. Bordeaux and Pau were reached the same day and 50 completed the entire circuit by June 24. In 15½ hrs. flying time, 1,575 miles were covered.

Light-Light Aeroplane

THE Hungarian pilot Kaszala reached Rome recently with a machine described as the smallest in the world. It is reported to be fitted with an 18 h.p. engine and weighs only 300 lb. The students at the Budapest Polytechnic constructed it entirely.

Air Service In Iceland

ON May 31, Iceland opened an air mail service, connecting the capital, Reykjavik, with the principal towns.

A South African Air Record

ON May 30 last, Col. Sir H. P. van Ryneveld, Director of South African Air Services, broke the S.A. speed record at Swartkop aerodrome, Pretoria. Flying a D.H.9 biplane fitted with a Bristol "Jupiter" engine, he attained a speed of 138 m.p.h.—an excess of 10 m.p.h. over the previous record.

Twenty Years Ago!

Extract from "The Auto." (Precursor of "Flight"), June 27, 1908.

"*M. Delagrange Flies Over Ten Miles.*—M. Delagrange has continued his short flights at Milan, making flights of nearly up to 3 kms. at a time until Monday last, when he capped all previous performances and created a new world's record by flying, at a height of from 10 to 20 ft., a distance of 17 kms. in 16½ mins. on the Piazza d'Armi. A proposal is now on foot for M. Delagrange to fly in a match against Mr. H. Farman over a specified course, which will be a further mark in aviation history as the first pre-arranged contest of its kind."

Armstrong-Siddeley Engines in Italy: Sig. Mussolini (second from right, in silk hat) inspecting the triple-engined (Armstrong-Siddeley "Lynx") Fokker monoplane employed on the Munich-Milan air line. Next to the Duce is Gen. de Pinedo, while behind him, on the extreme right, is Sig. Balbo, Italian Under-Secretary for Air. Note the young lady just about to give the Fascist salute.

"THE DRONING HAWK!"

By "LONELY"

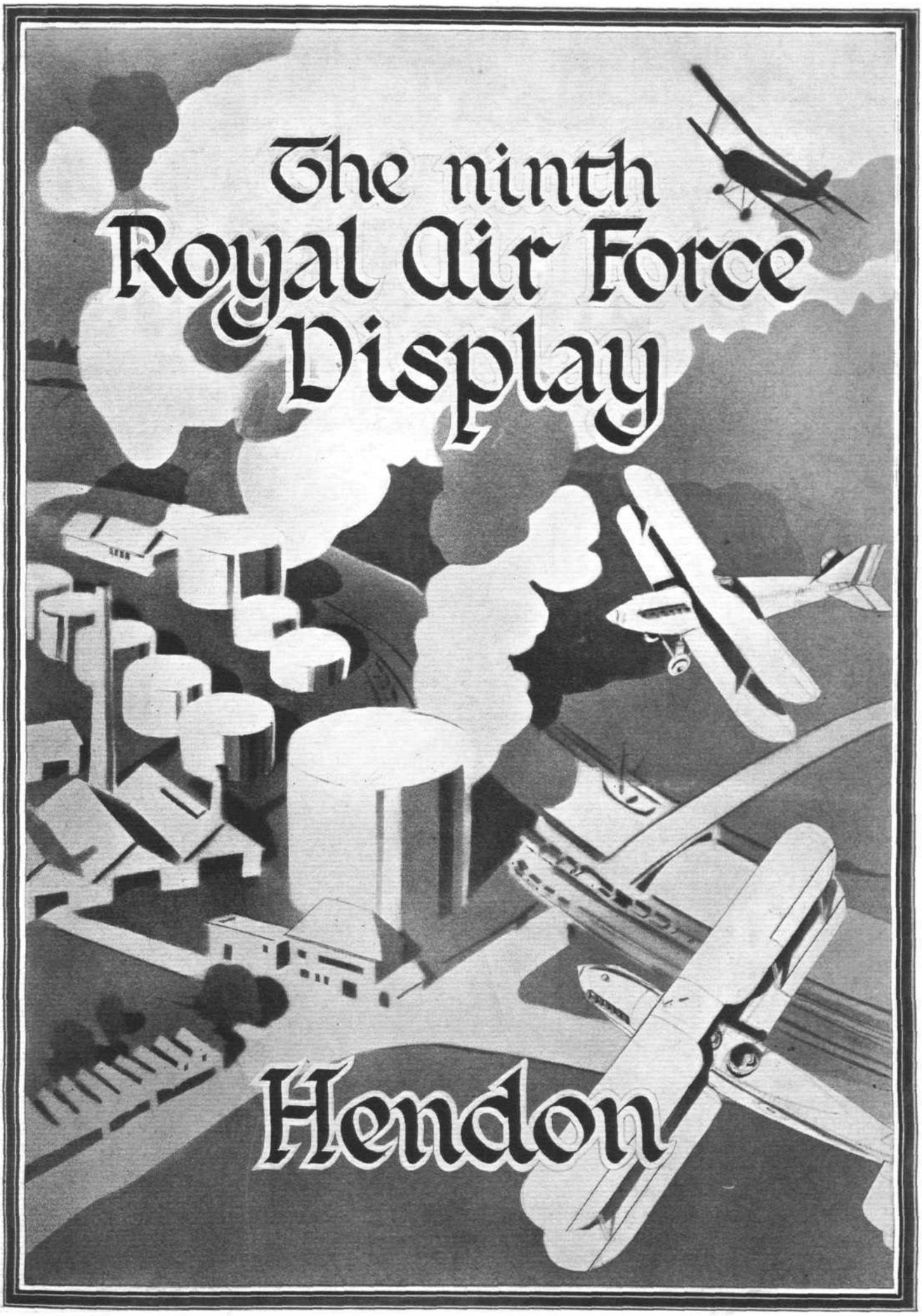
Introduction

Honour the men a fellow meets!
Or may meet—'ere his sands are run.
The "M"—"E"—"N" who of their feats
Are modest—Boasting none.

Who sense the limit of their powers,
And "Ten" call nothing more.
Whose acts are prone to influence ours
Till better than before.
Men. Young or gray.
With a thoughtful way
And no use for a braggart air.
"Von," "John" or "Sam,"
Whose occasional "Dam"
Is really a brave man's prayer.
Men who rise o'er the clods
And tackle the odds.
Men—As from "Ir'land" to "Greenly" flew.
Who high o'er the Deep,
With "The Droning Hawk" sweep,
And say "God"—"How D—Do."

Oh "The Droning Hawk" is a singular Bird
And Devil a feather has she.
Or "He," or "It"! Which matters no whit
To you—or the Bird—or me.
For no Bird before
(In Peace or War)
Has so made History.
If 'tis awkward to fall
From an ordin'ry wall
To earth where folk ride or walk,
Say, mate, you bet,
It's awkwarder yet
To fall from "The Droning Hawk."
If you squint from the cage,
(Called "The Fusilage")
Down a thousand feet or so,
I think you'll remark—
"Boy! Stick to the Ark
"Whoever sings 'Sweet and Low.'*
"Like superior glue—stick over the view
And let 'The Short Cup' go."
Oh, 'tis "Up" and it's "On"
A cheer, and they're gone,
Up and away in space.
With "The Droning Hawk,"
Where the lightning's fork
And the circling sea-birds race.
And men awhile
Glimpse The Awful Smile
On the Master Pilot's Face.
Far, far below
(Where "The Liners" go)
Is the cold Atlantic's breast.
Far, far behind
(With anxious mind)
Friends praying for the best.
As on men race—through boundless space,
O'er ocean to the West,
With Death, maybe,
For company,
And Life an honoured guest.
"Ha! Ha!" One saith,
"Friends, I am Death!
"And I garner many souls."
But the Pilot brave,
In the Air Hawk's cave)
Just sticks to his "Controls."
While those with him there
(Real pals who dare,
And do these splendid things)
To the "drone" conferred
By the Petrol Bird,
Speed on 'neath its outstretched wings.
No footprints there,
In the realms of air,
In the lone vast spaces high,
Save Those Immense
Of Omnipotence
Which can blot out the sky.
When you've no time to look
(Or chance) in "The Book,"
And consider what crop you have sown,
But suddenly doubt
(Should the "Petrol" give out)
If your Finish will ever be known.
When dense mists blind,
Or a strong head wind
Howls frenziedly, "Who are you?
"Weird monster of smell
"And noise as well,
"Hurtling my kingdom through.
"Ho! ho! He! he!
"Defying me!
"A very rash thing to do.
"Ha! ha! Ho! ho!
"I'll have you know,
"A dangerous thing to do."
Now Men who Do,
Lord see you through,
Ye men of purpose strong.
When round your 'Plane,
The Hurricane
Howls Death's dread Battle Song.
High o'er the sea,
Where mountains be—
Of waves that sweep along,
And down and deep,
Where mortals sleep,
A veritable throng.
Far, far below
No "Daisies" grow.
Naught there but sea—sea—sea!
What, nothing? No,
Above! Below!
Save the Gate of Eternity.
Nothing beneath; save foam for a wreath
If "The Droning Hawk" should fall.
Nothing beneath,
Save waiting Death.
That is all!
Honour the folk who fly to the East,
To North, or South, or West
In "A Droning Hawk," that singular "Beast"
Or "Bird," as suits you best.
Or "He," or "She," or anyhow, "It."
The Thing with a smell in Its train.
With intestines of steels
And with various wheels,
The Modern "Airoplane."
Honour the folk who fly for the West,
Or for anywhere lawful, and fail.
Who try, and p'r'aps die
With no witnesses nigh
To The Tragedy, part of the tale.
None to say of the brave,
"Lo! here is their grave,
"Just here," neath the ocean or earth.
In that tone which extols,
Plus a prayer for their souls,
And a tribut'ry tear for their worth.
Oh, "The Droning Hawk" is a singular Bird,
A freak with "Propeller" and "Planes."
A wonder, indeed,
Of invention—and speed,
Evolved by exceptional Brains.
A marvel whose breath
Is an Agent of Death,
When certain contingencies be.
And no Bird before
(In Peace or War)
Has so made History.
Honour the folk a fellow meets
(Or may meet) 'ere under the sods.
The folk who do
Stupendous feats,
And squarely face the odds.
Who soar with "The Droning Hawk," and race—
On—on through the gray and blue.
Who catch a glimpse of their Maker's Face
And say "God—How D—Do."

* Tennyson's Lullaby, "Sweet and Low."


The ninth
Royal Air Force
Display
Hendon

The ninth Royal Air Force Display

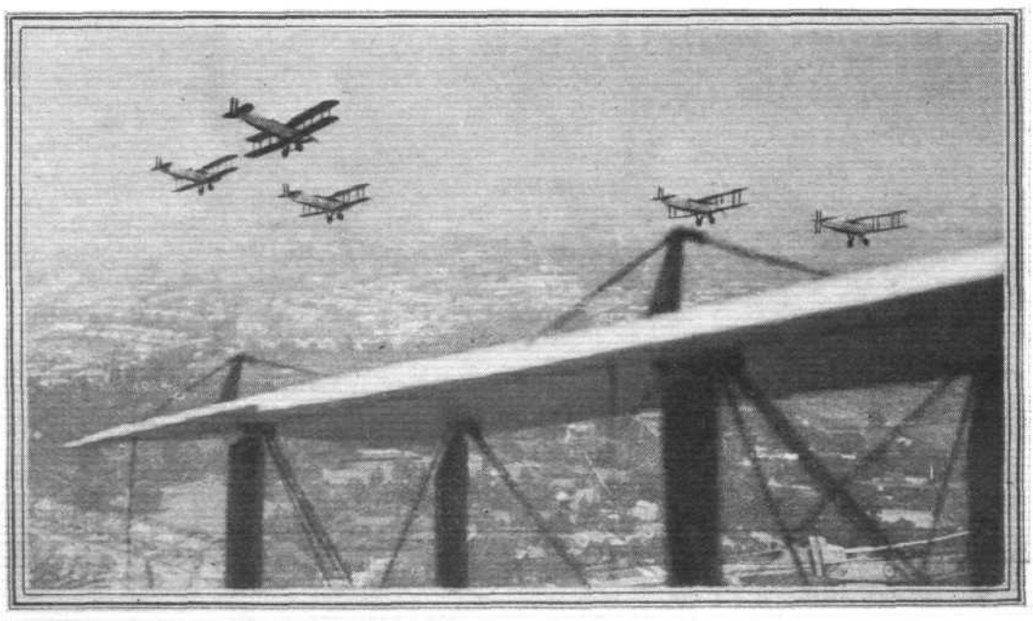
FUNCTIONS OF SERVICE AIRCRAFT

By MAJOR F. A. de V. ROBERTSON, V.D.

THE R.A.F. Display continues to attract its thousands and tens of thousands. That it is one of the most popular events of the summer in London is beyond question. Nor is the reason far to seek. The London public shows its discrimination by deciding that landplane racing is a very dull and boring spectacle and may be disregarded (the same would not apply to seaplanes, were there any opportunity of watching such a beautiful sight as a seaplane race), but that aerial stunting and formation flying are quite as attractive as the musical rides of the Greys and the Royal Horse Artillery. At the Hendon Display stunting and formation flying are seen at their most excellent, and many other thrilling and attractive sights as well. Moreover, there is no doubt about it that the Royal Air Force is popular. All our fighting services are popular, even though our populace is as peace-loving as any in the world. It is true that as yet the airman has not won the supreme distinction of a name like "Tommy Atkins" or "Jack Tar," and the music halls and revues do not ring with songs like "Oh, listen to the band" and "It's the Navy, the fighting Navy," which were once so popular. The air force is still too young to be thus celebrated. But the people know that it did its bit, and a bit more, in the war; and they know that its training now is worked up to a supreme degree.

It is perhaps inevitable that the populace should go to Hendon, to the Tournament at Olympia, and to the Tattoo at Aldershot, in much the same spirit as they go to a circus. They want to be amused and delighted by seeing wonderful feats. We must accept that spirit as inevitable in most of the spectators. But the Display would fail of much of its purpose if serious-minded citizens gleaned nothing more from it than amusement. There is ample evidence of rapidly spreading airmindedness in the nation, for which we have to thank mainly the fine enterprise of the Air Ministry in fostering light aeroplane clubs and University squadrons. The very numerous young men and women who now know all about a "Moth" do not accept aeroplanes as just aeroplanes. They like to know about the different types and their why and their wherefore. At schools, too, where the Air League recently conducted a campaign of lecturing, the intelligent interest displayed in the subject by quite small boys is surprising. Though Jones Minor may not be able to spell "Schneider," he has distinct ideas on the rival merits of air-cooled and water-cooled engines, and he demands a lucid explanation of why a Siskin has such a funny undercarriage.

Added to all this, the growing interest in flying matters received a distinct impetus from the air exercises last summer. John, of London, wanted to know why he was bombed so often. He began to grasp the fact that Foxes were uncommonly fast bombers and proved a tough nut for the defending fighters to crack. He was disturbed at seeing his



Rehearsing for the R.A.F. Display: This photograph shows several Fairey III F. machines making a turn in formation.

["FLIGHT" *Photograph*

defenders thus nonplussed, and wondered what the Air Ministry were going to do about it. Also, he heaved a sigh of relief, when he read that a formation of raiders had been caught on the coast by the fighters from Hawkinge and Tangmere and shot to blazes. Why was that not always done ?

This rapidly growing spirit of intelligent enquiry ought to, and does, receive a certain amount of satisfaction by studying the various items of the Display. The main difference between a fighter and a bomber is almost generally realised, and also the distinction between a day bomber and a night bomber. The programme is usually a very excellent publication, and helps the enquirer to a considerable degree. But a programme has its limitations. The intention of the present article is to give additional information about the scheme of air defence and the part played in it by various types of aircraft. In doing so the actual list of machines which will be seen at Hendon next Saturday will not set limits to the text. One may better understand the types which one sees if one knows something about other types which are not present.

The Parade of New Types

About a dozen new types of aircraft will be seen in the parade of new types this year. In previous Displays there have often been more. This parade is both the most educative and the most puzzling item of the whole Display. It shows that our designers are hard at work, and that their ideas are various. But why, some spectators may ask themselves, are so many new types necessary ? The programme can hardly be expected to explain that while many experimental types must be produced, they do not all go into production. " Many are called, but few are chosen."

The fact is that the Air Ministry desires to have as few types as possible in actual service use. But this ideal cannot be easily realised. Not only is aircraft design a young science, constantly advancing, but often two types in the same class are so even in merit that one can hardly be preferred to the other. Moreover, it is an unquestioned necessity for the Air Ministry to keep alive, by means of orders, all the dozen or so of aircraft firms on which the country depends for its air equipment in time of war. Therefore, when two machines of equal merit are produced, the probability is that orders for both will be given, and so many squadrons will be equipped with the one, and so many with the other. Occasionally a " radical " machine, like the Fox with " Felix," or the Sidestrand with twin " Jupiters," will be produced, and then the policy is to equip one squadron with the type, and give it an extended trial. Hence we find numerous types in the Air Force list, though the functions of the squadrons (apart from the Coastal Area and Fleet Air Arm) are divided into four classes only, *i.e.*, fighters, bombers, army co-operation, and communication.

The Fighters

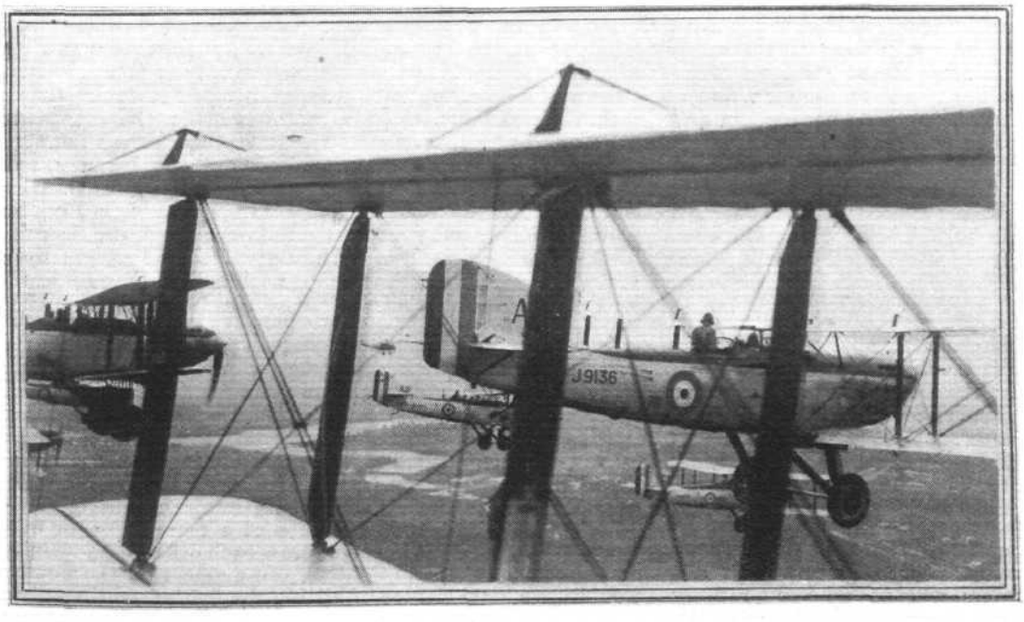
The fighter is a defensive aeroplane, despite its aggressive name. It tries to form square round some position or some convoy, and by its fire to drive away all who would interfere with its charge. But the Royal Air Force knows better than most that the best form of defence is attack. Therefore, so far as the Air Defence of Great Britain is concerned (and that constitutes the primary function of the Royal Air Force), a fighter is almost an anachronism.

Were it practical politics to pursue the purest strategical ideal, the fighter would be abolished, and all available funds be put into raising squadrons of bombers. To bomb the enemy's aerodromes and aircraft factories is by far the most effectual way of preventing him from bombing anything belonging to us. To catch him on our coasts, which is the best which the fighters can hope to do, is a tardy way of dealing with him. Strike at the nest and the eggs, rather than wait to strike until the young cobras are striking at you—that is the soundest policy. One could somehow imagine Spartans or French men rising to such an ideal. The French showed in 1914 that they were prepared to lose Paris so long as they could save France. But everyone, apparently including the Air Council, is doubtful whether Englishmen possess such a philosophy of war. In the last two years of the great war there was a certain amount of squealing about the air defence of London, and some squadrons were actually withdrawn from the front to engage in the defence of the capital. That really was risking both England and France, and all the other allies as well for the sake of the lives of a few hundred Londoners. So the Air Ministry feels that it must have fighters, and, that being so, it intends to have them as good as possible.

We should pause here to reflect that while the fighter seems to have no essential place in Air Defence, for it has not the range to be able to act as escort to our own bombers on long raids, it does seem to be a necessity in military defence. Army co-operation aeroplanes and short-range army bombers will certainly be attacked by hostile fighters, and therefore need the protection of fighters on their own side. The same would apply to aircraft carriers and, in the future, to airship carriers. Not only the carriers, but also their reconnaissance aircraft will need protection.

Four types of fighter are at present on the service list, the Gamecock, the Grebe, the Siskin, and the Woodcock. The Woodcock, with a Jupiter 4 engine, has not a spectacular performance, but it is easy to fly and has a low landing speed and a wide track. It was therefore adopted and given to two squadrons (Nos. 3 and 17), with the idea that it would be a good night-flying machine. In those days there was more doubt than there is at present about what types could be used for night flying. The whole problem hangs, of course, on landing. Presently it was found that the speedier Gamecocks and Siskins could be landed safely at night, and both were used for night flying. Only the Grebe was considered quite unsuitable for night flying. Grebes and Woodcocks are now obsolescent, and will shortly disappear from the list.

The Siskins and the Gamecocks represent two different schools of thought in the design of fighters. The former is metal—steel, in fact—and has a supercharged Jaguar engine. The latter is made of wood, and has a Jupiter VI engine.



Rehearsing for the R.A.F. Display: Struts interfere somewhat with the view, but nevertheless quite a number of Fairey III F's may be seen flying over the Welsh Harp, with a Hawker "Horsley" looking very small in the background.

[" FLIGHT " *Photograph*

The Gamecock develops its highest speed up to an altitude of 5,000 ft., the Siskin is slower until it reaches 15,000, and then its supercharged engine tells, and it catches up the Gamecock. At 25,000 the Siskin is as fast as any standard fighter anywhere.

Some authorities hold that it is a mistake to wait until such great heights have been obtained before developing your best performance. That is only necessary, they say, on army work, when opposing fighters are expected. When your object is to shoot down bombers, they will not fly at the height which is most convenient to the fighters, and if they are very fast they will keep low down, and finish their job while the fighters are still climbing. If this is true, a fighter of the Gamecock school should be more useful than one of the Siskin school. However, the Siskin is considered the most useful compromise, and every service aeroplane, and every other aeroplane, has to be some sort of compromise. So the Gamecock is being discarded in favour of the Siskin, not only for the above reasons, but also because wood has to be supplanted by metal.

But finality is never reached, and at this stage of development it never ought to be reached. While the supply of Siskins for the various fighter squadrons is still incomplete, the Air Ministry has to be on the look-out for something still better. In the parade will be seen four new fighter types, the Bristol Bulldog II, the Hawker Hawfinch, the Boulton and Paul Partridge, and the Westland Wizard. The first three have Jupiter VII engines, and the last a Rolls Royce F.11. These have been described as "Day and Night" fighters, and the term may become official. It is a descriptive term, but perhaps rather misleading. What it means is that these machines are standard fighters, fitted for all usual descriptions of work which a fighter may be called on to do. While not specially designed for night fighting, they will be able to go up by night to meet raiders and to land again without undue risk.

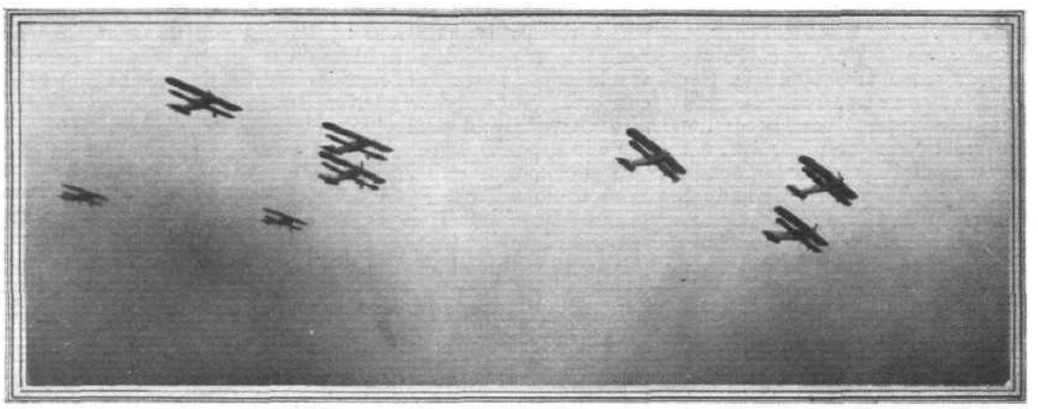
Two of these, the Bulldog and the Hawfinch, have been selected as better than the others, and have been sent to squadrons, after doing their tests at Martlesham, for extended service tests. The specimen machines are sent together to one squadron after another, and it is understood that everywhere both have won the highest praise from all the pilots who have tested them. In fact, it has so far been found impossible to decide which of the two is the better; and it may be presumed that both will be put into production, and in due course each will be served out to so many squadrons. Both have frameworks of steel. It will be remembered that Bulldog I was seen at the Display of last year. The earlier version showed high promise, and the modifications embodied in the second edition have produced a first-class machine. Both the Bristol and the Hawker firms deserve high praise and congratulations on their success.

There has been talk lately of a new sub-class to be known as "Interceptor" fighters. If any such machines exist, they are still secret. Still, the observer who followed the course of the Air Exercises last year would naturally expect the Air Ministry, which is by no means a sleepy body, to have under consideration a specialised type of fighter, which would not be so much of a compromise as most service aeroplanes are, but would sacrifice some qualities, such as low landing speed and flight endurance, to enhance others such as high speed and rapid climb. It would also be natural to predict that such machines, when they appear, will be supplied to the squadrons with aerodromes on the south coast. The picture which comes to the mind is that on receipt of a raid warning the interceptor fighters will go up very rapidly along the coast, prepared for a short sharp fight with the raiding bombers. In the sectors of the inner ring round London, the standard fighters will also go up and cruise about in readiness. They will require a little more petrol, as they must be in the air before the raiders draw nigh, and they must have a somewhat lower landing speed, as they will have to work by night as well as by day. It requires no occult powers to prompt the guess that the development of the interceptor fighters is connected with the appearance of the "Mercury" engine in the "Crusader" last year.

It is also not impossible that the Air Ministry may also have in mind the production of a special type of night fighter. It is at least a speculation which will add interest to a visit to future displays at Hendon.

The General Purpose Aeroplane

The newly introduced term of "General Purpose" machine has led to some confusion of thought, especially as it is being supplied to bombing squadrons whose previous type, the D.H.9A. was originally a day bomber. The explanation is that a general purpose machine was required for work overseas where no enemy aircraft is to be encountered and where, therefore, specialized types are not necessary. Two types have been selected as general purpose machines, the Wapiti and the Fairey III F. For the police work which has to be carried out in Iraq, the Middle East, and to some extent, in India, the general purpose machine is invaluable. It will do photography, reconnaissance, light bombing, and army co-operation work. The Fairey IIIF. has already made some great flights in Africa. The "Wapiti" is shortly to appear in Iraq (first with No. 84 Bombing Squadron) and India. In India there is a great deal of army co-operation work to be done, and so squadrons with specialised A.-C. machines will persist there. In Iraq, there is no need for such work, and possibly the one A.-C. squadron there, No. 6, may be supplanted by, or perhaps converted into, a so-called bombing squadron, using general purpose aeroplanes. In the Air Defence of Great Britain, the general purpose aeroplane plays no part.



In Formation: A squadron of Hawker "Horsleys" in the clouds.

["FLIGHT" *Photograph*

Bombers

Bombers are divided into two main classes, day bombers and night bombers. Until quite lately, the former were all single-engined machines and the latter twin-engined. The adoption of the Sidestrand with two "Jupiters" as a day bomber has modified that distinction. It is being supplied to No. 101 Bombing Squadron, and it will be interesting to watch developments. The Sidestrand is the first twin-engined day bomber used by the R.A.F. since the D.H. 10.

The two standard day bombers are the Horsley with "Condor," and the Fox, in which the "Felix" is being supplanted by the Rolls Royce F.11. The Fox is a lighter, faster bomber, but with less endurance than the Horsley. There is obviously work for both types. It is very gratifying to be able to discard the foreign engine from that admirable machine, the Fox. Rolls-Royce are to be congratulated on providing both types of engines for both types of day bomber.

Night bombers remain a specialised class, in that speed and manœuvrability are sacrificed to endurance and range and other qualities incidental to the work demanded of them. They are, of course, heavily armed with machine guns; but it remains an interesting point of minor tactics of the air, whether the armament of a bomber will be able to drive off attacking fighters, even though the bombers keep formation and use covering fire. One would imagine that once the bombers were caught in the rays of a searchlight, or even when the searchlights began to cross each other in its vicinity, and so brought up the fighters, the gunners on the bomber would have little chance of hitting the fighters as they dived from out of the darkness.

There are three standard night-bombing machines in the service, not counting troop carriers which are served out to some bombing squadrons. These three are the Virginia with two "Lions," the Hyderabad with two "Lions," and the Hinaidi with two "Jupiters." The latter two are very similar to each other, but the saving in weight through the use of air-cooled engines gives the Hinaidi either more bombs or more petrol. No. 10 Bombing Squadron is equipped with the Hinaidi. These two Handley-Page types sacrifice a certain amount of range and bomb load to attain, what is, for such a class of machine, quite high speed. The Virginia is slower, but has greater range and carries a heavier bomb load. It seems well advised to keep machines of different capabilities for different sorts of work, and three is not an excessive number. It may be reduced to two if the Hinaidi supplants the Hyderabad. The squadrons of the Special Reserve and Auxiliary Air Forces must for the present be content to use machines which are no longer standard in the regular service. This is a question of economy, and in due course, no doubt, all squadrons will receive standard types.

If the visitor to the Display will try to keep some of these points in his mind as he watches the various items, he will find that the Display is not merely a glorified circus, but something much more like a glorified lecture on the meaning of the term Air Defence.

SATURDAY'S PROGRAMME

A VERY varied and interesting programme has been arranged, which should once again reveal to the public the versatility and superiority of the R.A.F. There will be races, air drill, fighting, parading and bombing. Officers attached to the R.A.F. Reserve schools at Bristol, Coventry, Renfrew, Brough and Stag Lane will race on Avro "Lynx" machines, pilots of fighter squadrons will give individual displays on Armstrong-Whitworth "Siskins" in succession; other Siskins will fight each other; and a D.H. "Moth" will roll about the skies with the aid of the slots.

Fighting machines will see who can reach the greatest altitude in fifteen minutes, and will probably touch the 17,000 ft. mark.

The "clock system" by which aircraft records the accuracy of gun-fire on an enemy gun position will be demonstrated, and flights of day bombers of two types, and general-purpose machines will engage in simultaneous air drill, which they have been practising at Hendon during the past few weeks. The machines will be Hawker "Horsleys," Fairey "Foxes" and Fairey IIIF's.

There will be an additional interest in one race in the variety of machines taking part, which will be Armstrong-Whitworth "Siskin," Hawker "Woodcock," Gloster "Gamecock," Fairey "Flycatcher," Fairey "Fox" and D.H. "Moth." This will be the event for the Duke of York's Cup, competed for by pilots from the Air Ministry and Headquarters of Command in England.

A transport will find itself under air attack and be dispersed by machine-gun fire, and then assailed with bombs. An event that should be very illuminating to the public will be the exhibition of the common stunts in succession, as an illustration of advanced training. The pilot will do a loop and follow up with the usual manœuvres, each clearly defined. Loud speakers will again enable the public to hear orders given in the air when machines drill, whilst in the usual parade the development in aeronautics since last year will make itself manifest. Of course, many of the machines will have been seen before in the previous parades, but no doubt they have since been subjected to modifications, though this may not be apparent to the public eye.

Amongst the experimental types the huge Beardmore "Inflexible" is bound to attract a lot of attention, and so will the Supermarine-Napier S5, in which Flight-Lieut. Webster won the Schneider Trophy last year, although no doubt many took advantage of its public exhibition in London after that great event.

Our readers will find particulars of the Display machines elsewhere in this special supplement.

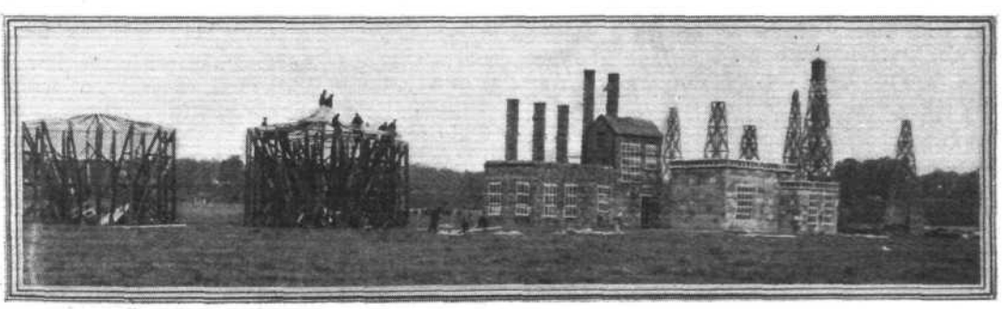
Hendon will get word of the near approach of bombing machines, and at a moment's notice machines will hasten off the aerodrome to intercept and attack. There will be a demonstration of the speed at which low-bombing attacks are made, although no bombs will be dropped, and a bombing squadron will fly past in open formation, whilst an oil refinery, in which the enemy's stock of fuel is stored, will get its deserts from ships' fighters and bombers. An observation balloon over the refinery will be brought down, but the observer who descends by parachute will be a dummy.

In an air battle with the enemy both sides will suffer, one machine being shot down in flames.

Amongst the interesting foreign air visitors expected is General Balbo, Under-Secretary for Air under Signor Mussolini, who hoped to arrive on June 28 at Hornchurch, leading a formation of twelve Italian machines. A French mission is also expected on Friday at Croydon, whilst other foreign countries to be represented by official missions will be Sweden, Norway, Denmark and Belgium.

Final rehearsals of the large number of machines taking part will be run through thoroughly at Hendon on Friday.

The only thing that has been left in the lap of the gods by the organisers is the weather, and experience has taught Englishmen to be very philosophical about that. Events start about 11 a.m., and are scheduled to finish just before 6 p.m. A complete and informative programme will be available to the public, and enable events to be followed with an intelligent interest and appreciation or recognition of the machines involved.



Erecting the "Targets" for the R.A.F. Display: Some of the "oil tanks" going up. At the Display they will "go up" in real earnest.

["FLIGHT" *Photograph*

FLIGHT

JUNE 28, 1928

AIRCRAFT TYPES AT THE R.A.F. DISPLAY

A "Flight" Souvenir Worth Keeping

IN the following pages will be found full-page photographs of all the different aircraft types which are to be seen at the Royal Air Force Display that is to be held at Hendon Aerodrome on Saturday next, June 30. Our object in publishing these is two-fold: The photographs are reproduced on such a large scale that they really show the types which they illustrate very clearly, and thus those of our readers who go to the Display, and we hope many thousands will do so, will be able to compare the photographs with the actual machines, and will later have a useful pictorial representation of any type the performance or appearance has particularly impressed them. To those of our readers who are unable to go to the Display, these photographic reproductions will at least serve to show in very considerable detail the types taking part, thus assisting them in forming a better idea of what took place at the Display, an account of which will be published in next week's issue of FLIGHT.

In the previous pages, Major F. A. de V. Robertson gives a very excellent explanation of the *raison d'etre* of the various classes of aircraft with which the Royal Air Force is equipped, pointing out the reasons which make necessary two classes of bombing aircraft: day bombers and night bombers; the functions of the single-seater fighter class; the aims and objects of offensive and defensive types, and so on. In each of the various classes there are different individual types, and such of these as are to be seen at Hendon are illustrated in the following pages. It should here be explained that the aircraft photographs are divided into two distinct sections illustrating the machines taking part in the actual manœuvres of the Display, and those which are merely on view or take part in the fly-past, or "parade." In the following notes, the numbers in parentheses indicate the page numbers on which the photographs of the types will be found.

Aircraft in the Display

Single-Seater Fighters.—Four types in this class will be seen in the Display, of which the Armstrong-Whitworth "Siskin" (489) is an all-metal machine used very extensively in the R.A.F., and now being built in large quantities. The Gloster "Grebe" (491) and the Hawker "Woodcock" (492) are obsolescent types going out of use and being replaced by more modern types, while the Gloster "Gamecock" (490) is of composite wood and metal construction, and is used by a number of squadrons.

Day Bombers.—Three types in this class will take part. We give photographs of two only, the reason being that one of the three, the Fairey "Fox" with Fairey "Felix" engine, is almost identical in outward appearance with the Fairey "Fox" with Rolls-Royce F. XI engine (507), which will be seen in the fly-past. Of the remaining two types, the D.H. 9A (493) is now obsolescent, and is being replaced although it is still used by several squadrons, especially in the East.

The Hawker "Horsley" (494) is used very extensively by the R.A.F., while it is produced also as a torpedo carrier, although it will not appear in that rôle at the Display.

Night Bombers.—Two types in this class will be seen, of which the Handley Page "Hyderabad" (495) is fitted with Bristol "Jupiter" engines, while the Vickers "Virginia" (496) is powered by two Napier "Lions." The two types are somewhat similar in general appearance, but the "Virginia" is the larger of the two.

General Purpose Aircraft.—This is, as the name implies, a class designed to fulfil a variety of functions, and machines in this class have to carry a great deal of equipment such as wireless, photographic apparatus, oxygen equipment, &c., in addition to the armament of machine guns and bombs. The class will be well represented at the Display by Fairey III F's (497) with Napier "Lion" engines.

In a class by itself is the de Havilland "Genet-Moth" (498), which is really a civil machine, although used by some of the R.A.F. squadrons, notably the Communications Squadrons. Capable of all manner of "stunting," the "Moth" will be seen in the Display carrying out evolutions in formation. Fitted with an Armstrong-Siddeley "Genet" engine of 80 h.p. only, the "Moth" will be the lowest-powered aeroplane in the actual Display manœuvres.

Aircraft in the Fly-past

In many ways the aircraft which take part in the Fly-past, or "Parade," will be of greater interest than those which perform in the actual Display manœuvres, for although they will merely "parade" past the enclosures and will not carry out such impressive evolutions as the latter, they are all of fairly recent type, many never having been shown in public before.

Special Aircraft.—Under this classification there will be three types, of which presumably the Supermarine-Napier S.5 (500) Schneider Trophy seaplane will merely be "on view," as, being a seplane, it cannot be flown from the Hendon aerodrome. This machine is, of course, one of those which took part in the race for the Schneider Cup last year, won by Flt.-Lt. Webster. The Beardmore "Inflexible" (499) will be the machine with by far the largest wing span (more than 150 ft.). It is a transport aircraft, and built entirely of metal. The Westland-Hill "Pterodactyl 1A" is a development of the experimental tailless machine demonstrated last year. The new type has a "Genet" engine, and the occupants sit side by side (501).

Single-seater Fighters.—In this class, four very interesting types will be seen. These four have recently taken part in a competition for single-seater fighters and thus represent the "last word" in their class. The Boulton & Paul "Partridge" (502) is an all-metal machine, fitted with Bristol "Jupiter VII," and is by a firm which has hitherto concentrated mainly on twin-engined aircraft. The Bristol "Bulldog" (503), similarly engined, is also an all-metal machine, incorporating the forms of construction specially developed by the Bristol company. The Hawker "Hawfinch" (504) also with "Jupiter VII," is remarkable for its compactness, and unusual in that it is a two-bay biplane, with pronounced stagger, which gives an excellent view. The Westland "Wizard" (505) is entirely different from the other three in this class, being a parasol monoplane, and fitted with the new Rolls-Royce F.XI water-cooled engine.

Bombing Aircraft.—The Boulton & Paul "Sidestrand" (506) with two Bristol "Jupiter VI" engines is a high-performance, all-metal, machine, which was described in detail in FLIGHT recently and will, therefore, be well known to our readers. The Fairey "Fox" (507) is not a new type as far as the machine goes, having been in service with R.A.F. squadrons for some years, but the particular example shown will be unusual in that it will be fitted with one of the new Rolls-Royce F.XI engines.

Troop Carriers.—The only type of this class which will "parade" at Hendon is the Handley-Page "Clive" (508), a twin-engined biplane of typical "H.-P." appearance, fitted with two Bristol "Jupiter VIII" geared engines. It differs from the Handley-Page "Hinaidi" mainly in the internal arrangements, which provide accommodation for troops and their gear.

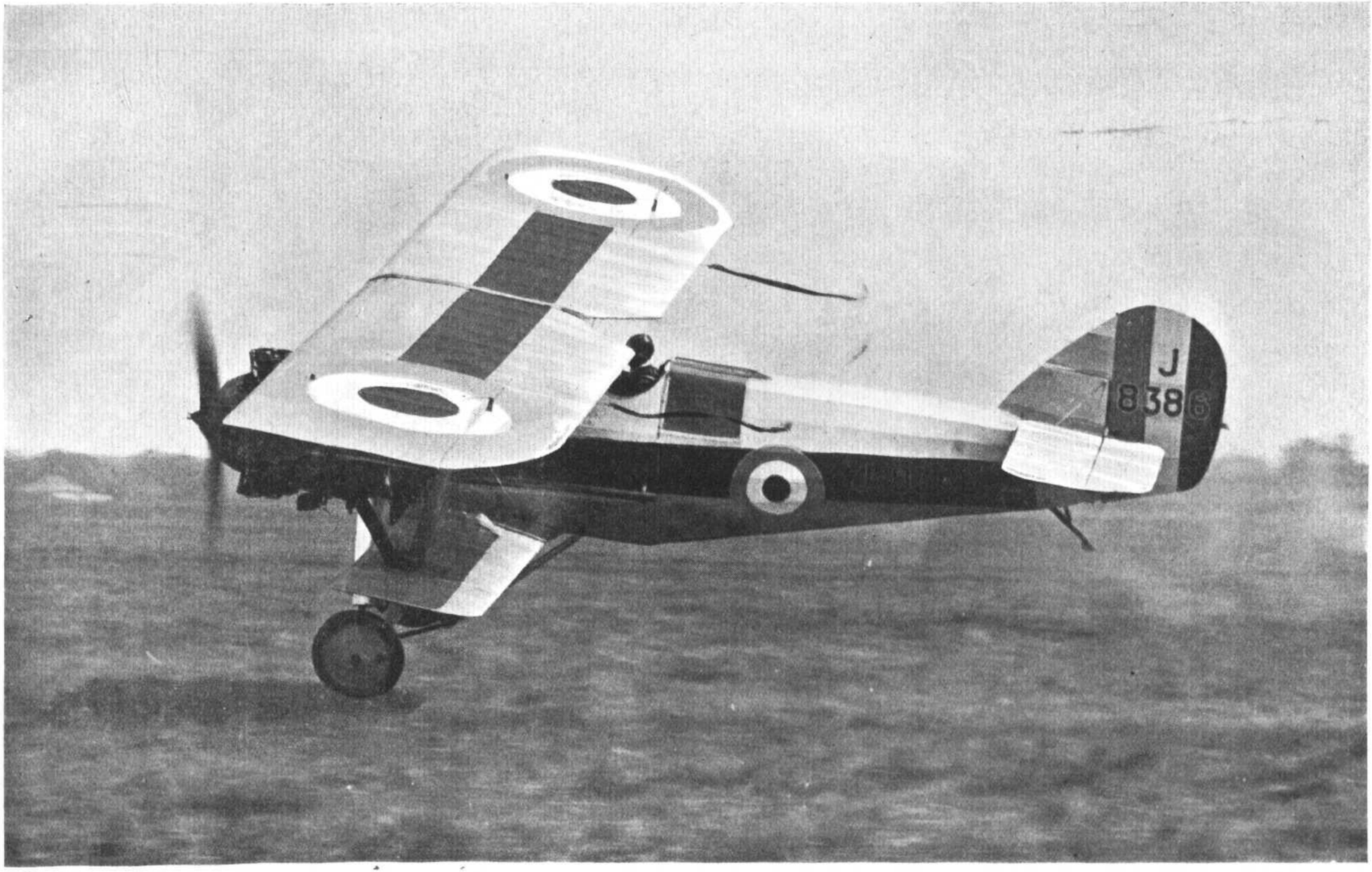
Torpedo Carriers.—The Blackburn "Ripon" (509) with Napier Series XI engine, will be the only representative of the torpedo 'plane class. Presumably, it will not demonstrate how it drops its torpedoes, but our full page photograph shows it in the act of doing so.

Civil Aircraft.—It would be difficult indeed to imagine a greater diversity in type than the three machines classed as civil aircraft which will be shown to the public at the display.

The de Havilland "Tiger Moth" (510), with de Havilland engine, is a diminutive monoplane, and has the distinction of holding the world's speed record for light aeroplanes, Capt. Hubert Broad having averaged 186·5 m.p.h. over a measured 100 kms. course. For an engine of about 130 h.p., this is, of course, a remarkable achievement.

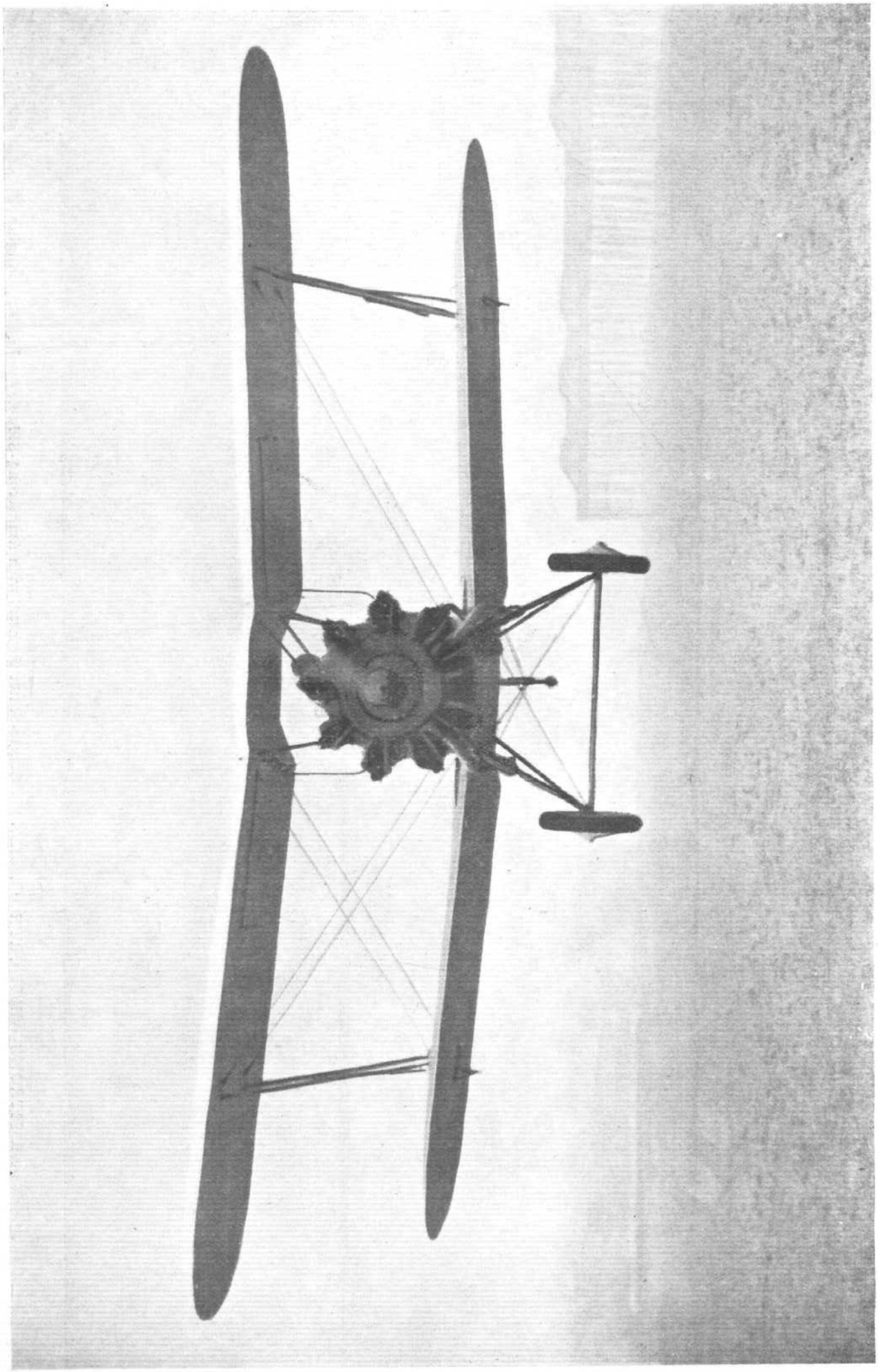
The Halton H.A.C.1 machine is fitted with the lowest powered engine of any, taking part in the Display, a Bristol "Cherub" of 30 h.p. only. The machine was designed and built by amateurs, members of the Halton Aero Club, and made its first appearance as a biplane. More recently, in order to gain speed and thus make the machine suitable for racing, it has been converted into a monoplane, and it is as such that it will appear at Hendon (511).

The Vickers "Vellore" (512) is a very unusual type of machine, and is a recent production. Of all-metal construction, it is designed as a freight carrier, the object being to provide a high paying load for each horsepower of its Bristol "Jupiter" engine. As a freight carrier, the machine does not need to be particularly fast, and it will be observed that the wing area is large. But the larger the area for a given weight, *i.e.*, the lower the weight carried per square foot of lifting surface, the greater pay load can be carried with a given engine, and this, doubtless, is the reason for the ample proportions of the "Vellore."



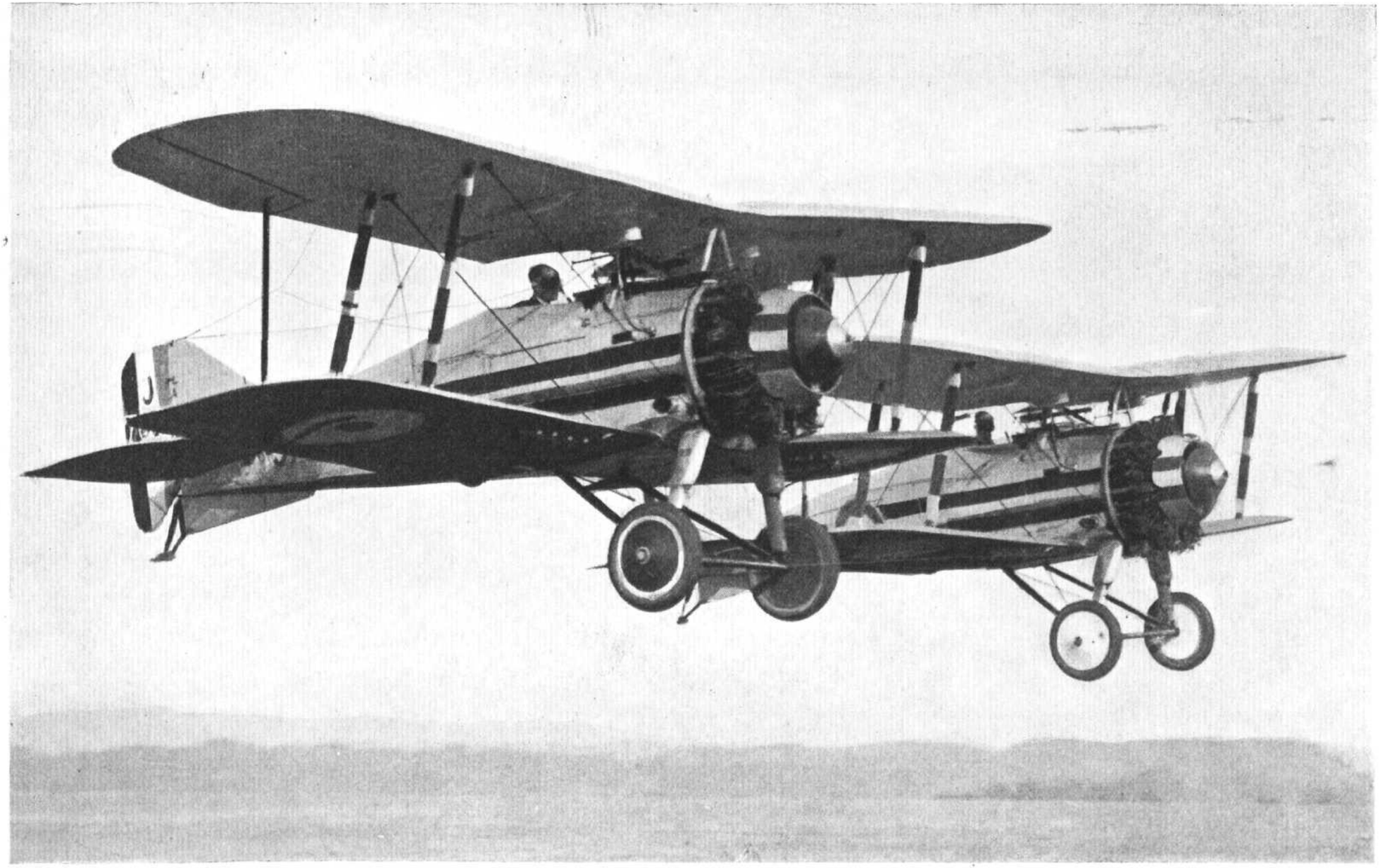
["FLIGHT" *Photograph*

ARMSTRONG-WHITWORTH "SISKIN": Single-seater Fighter, with Armstrong-Siddeley "Jaguar" Engine.



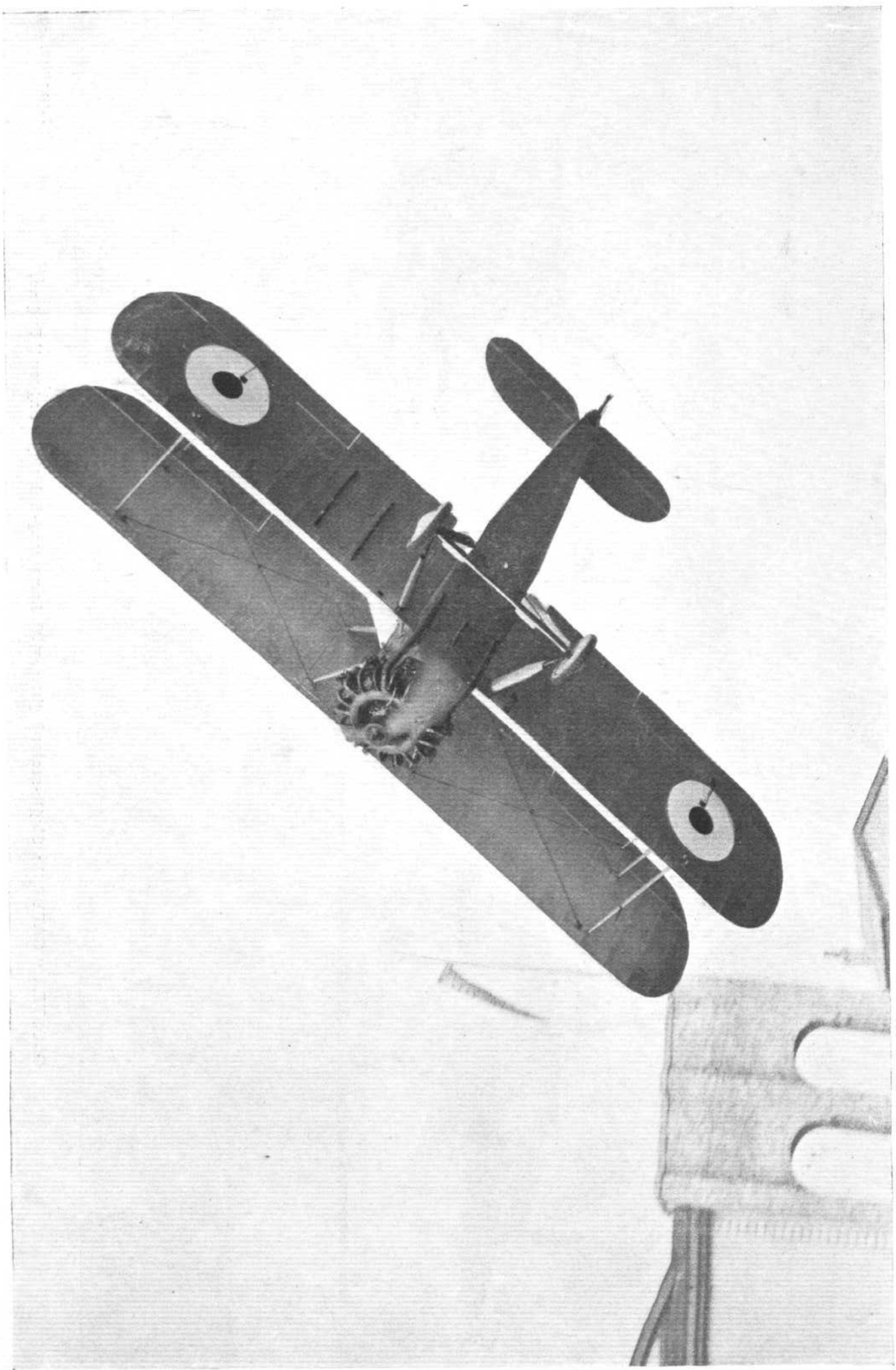
["FLIGHT" Photograph

GLOSTER "GAMECOCK": Single-seater Fighter, with Bristol "Jupiter" Engine.



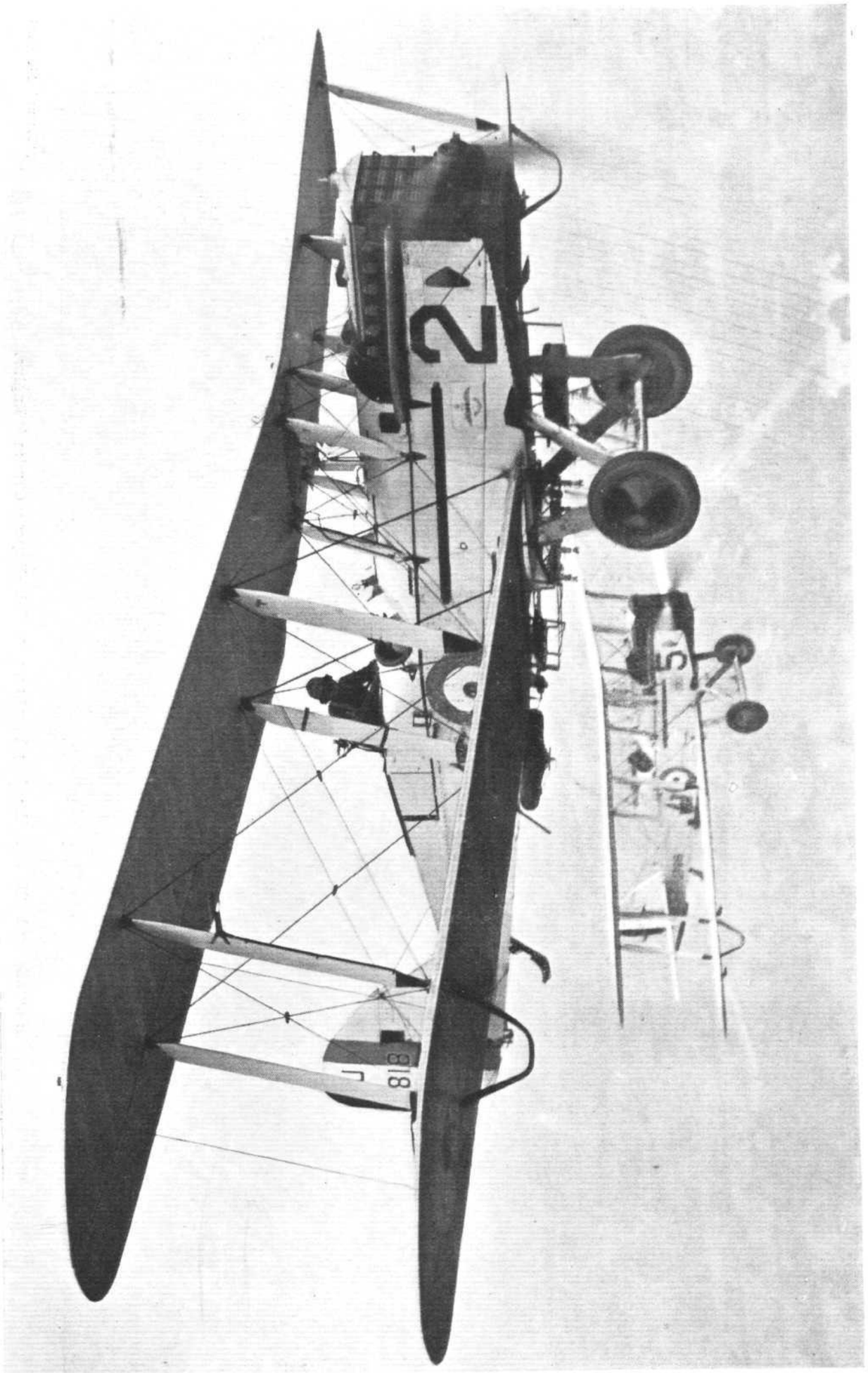
GLOSTER " GREBE " : Single-seater Fighter, with Armstrong-Siddeley " Jaguar " Engine.

[" FLIGHT " *Photograph*



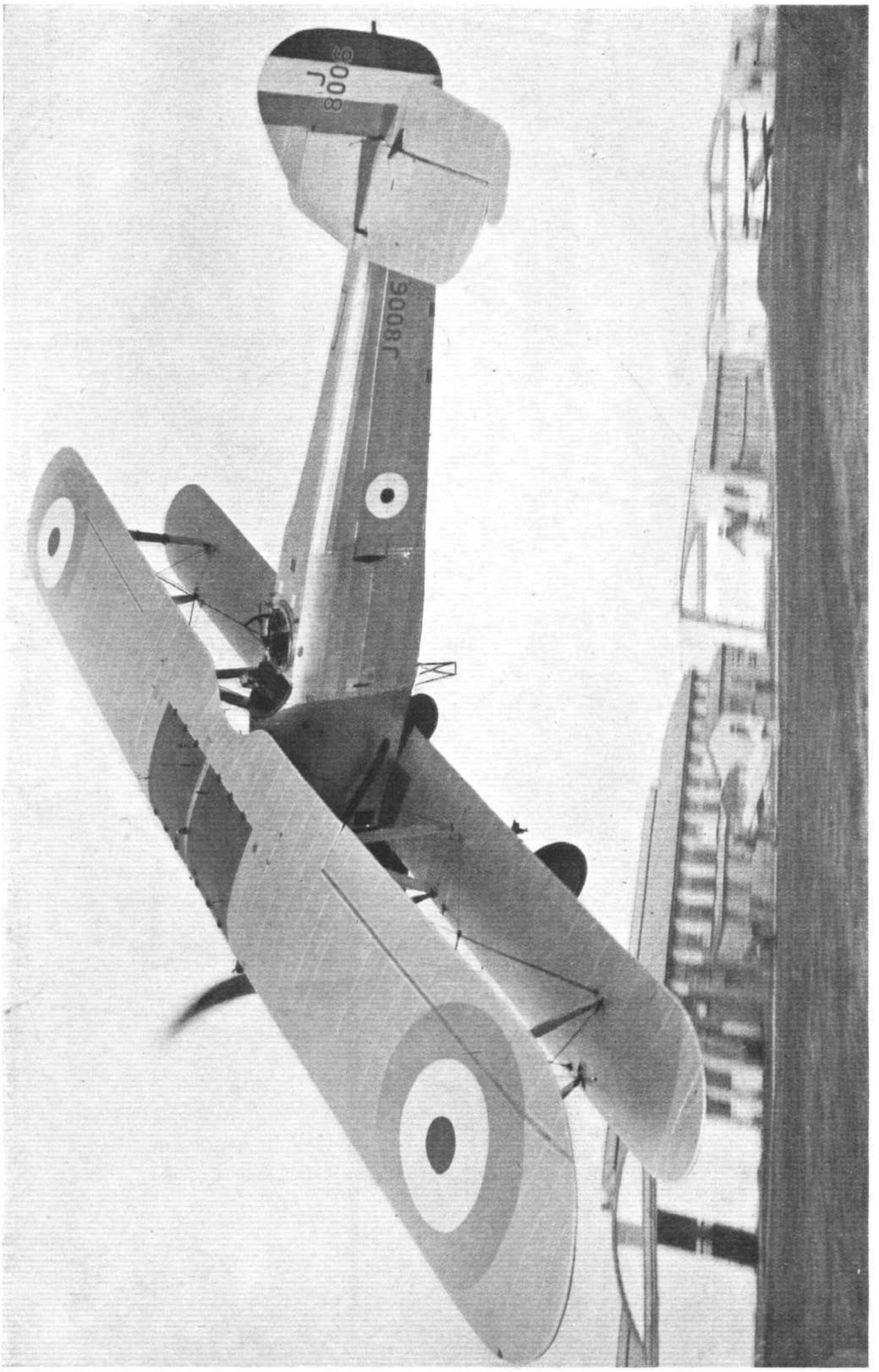
["FLIGHT" *Photograph*

HAWKER "WOODCOCK": Single-seater Fighter, with Bristol "Jupiter" Engine



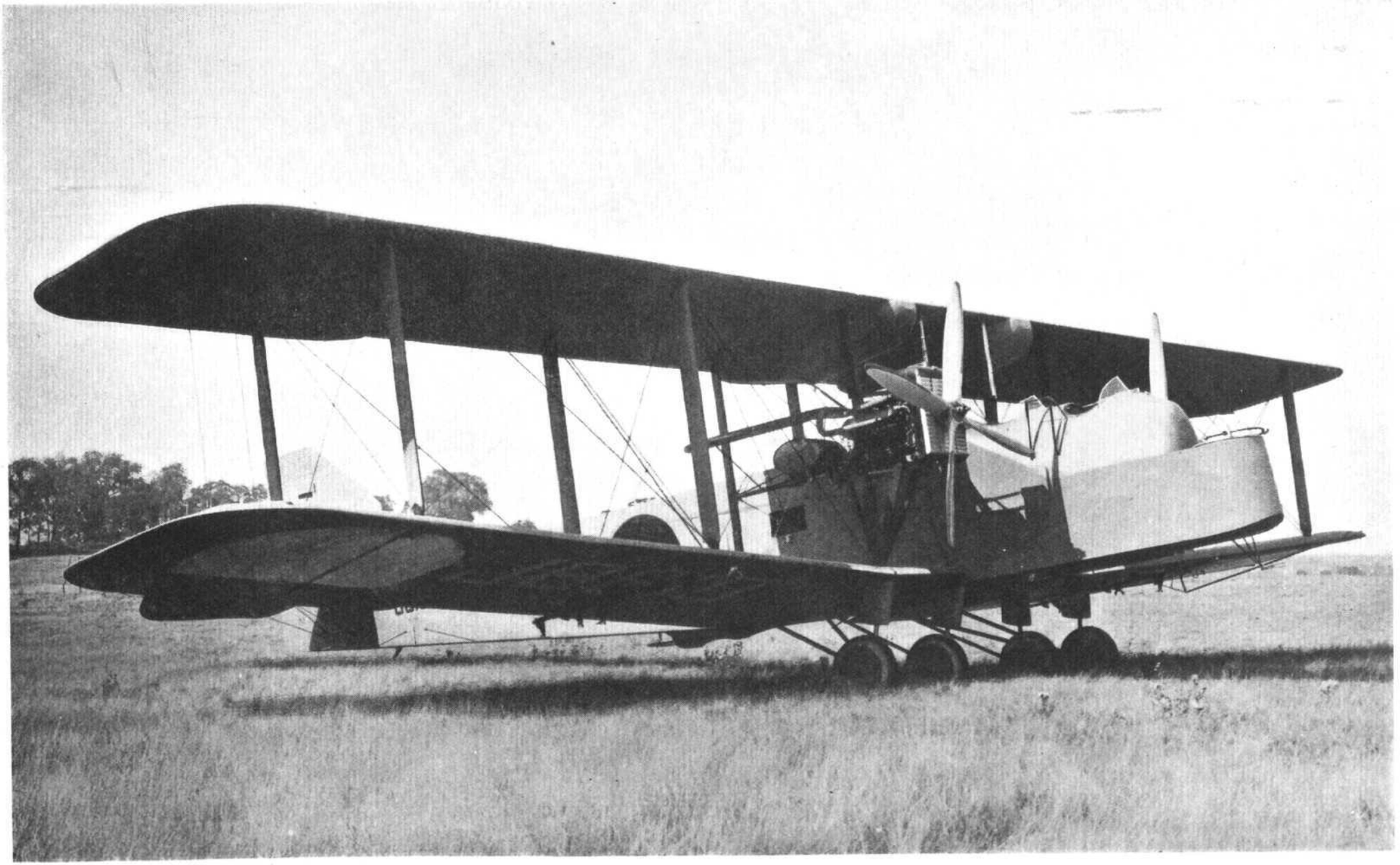
["FLIGHT" Photograph

DE HAVILLAND D.H.9A : Day Bomber, with "Liberty" Engine.



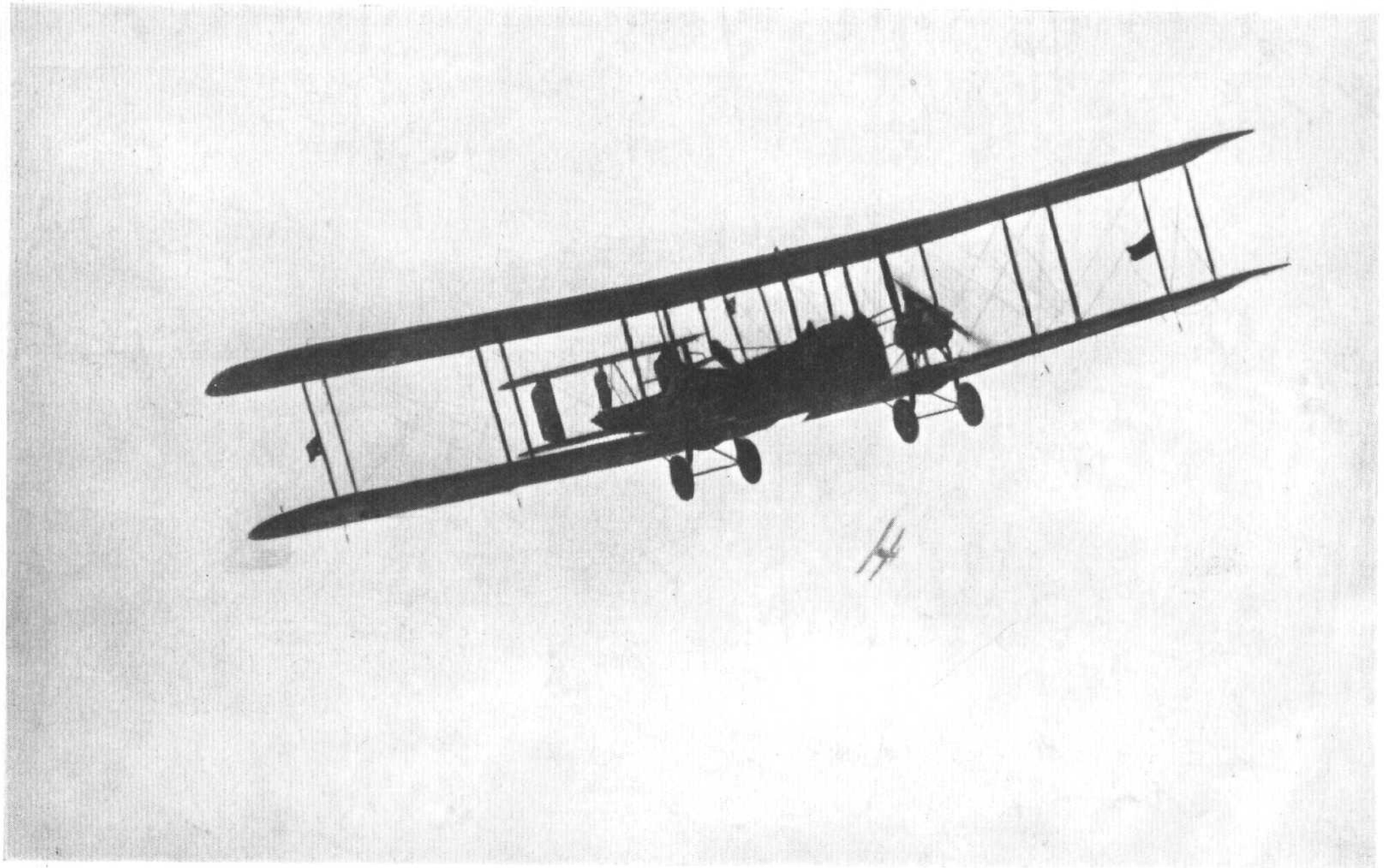
["FLIGHT" *Photograph*

HAWKER "HORSLEY" : Day Bomber, with Rolls-Royce "Condor" Engine.



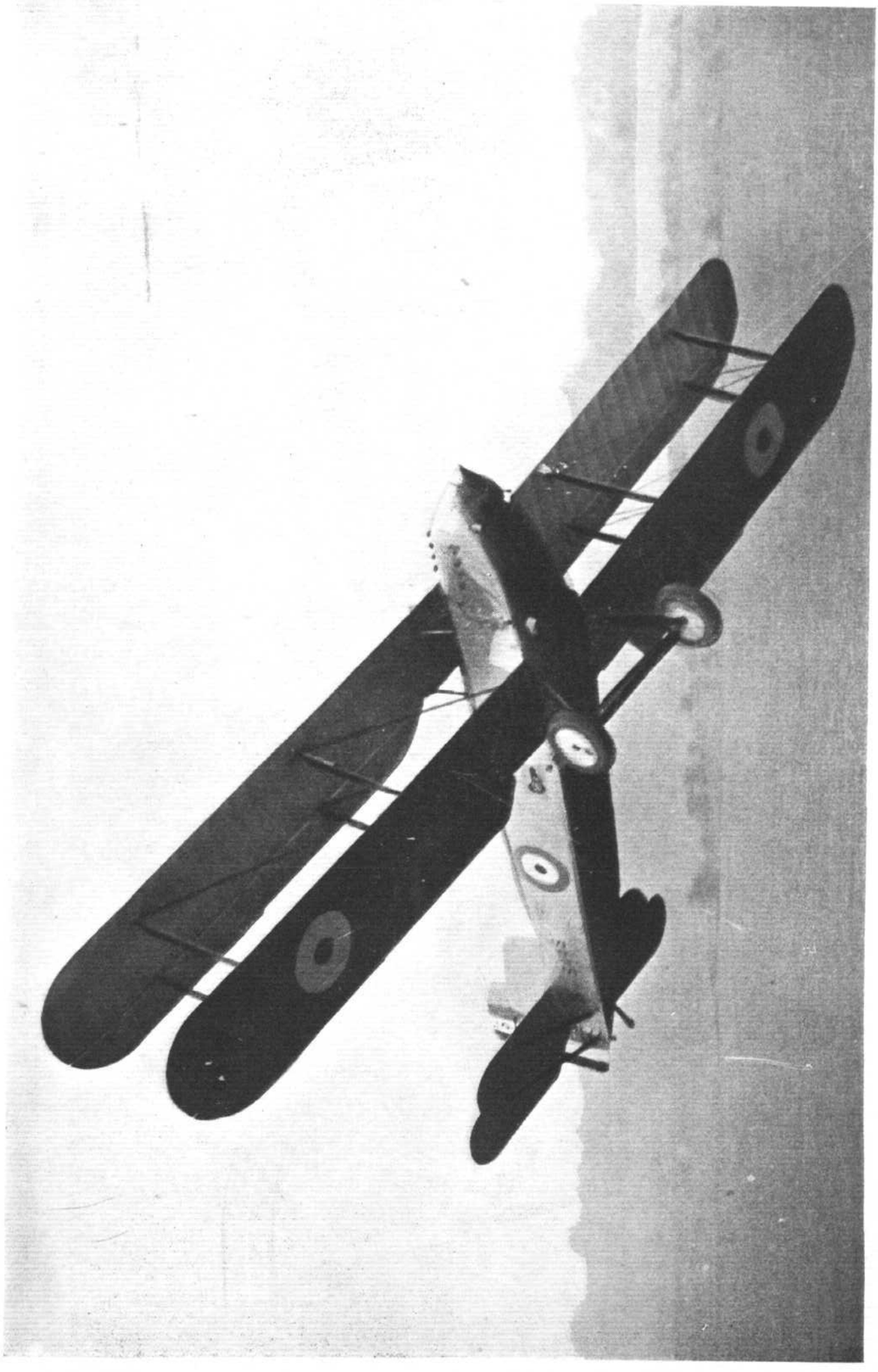
["FLIGHT" *Photograph*

HANDLEY PAGE "HYDERABAD": Night Bomber, with two Napier "Lion" Engines.



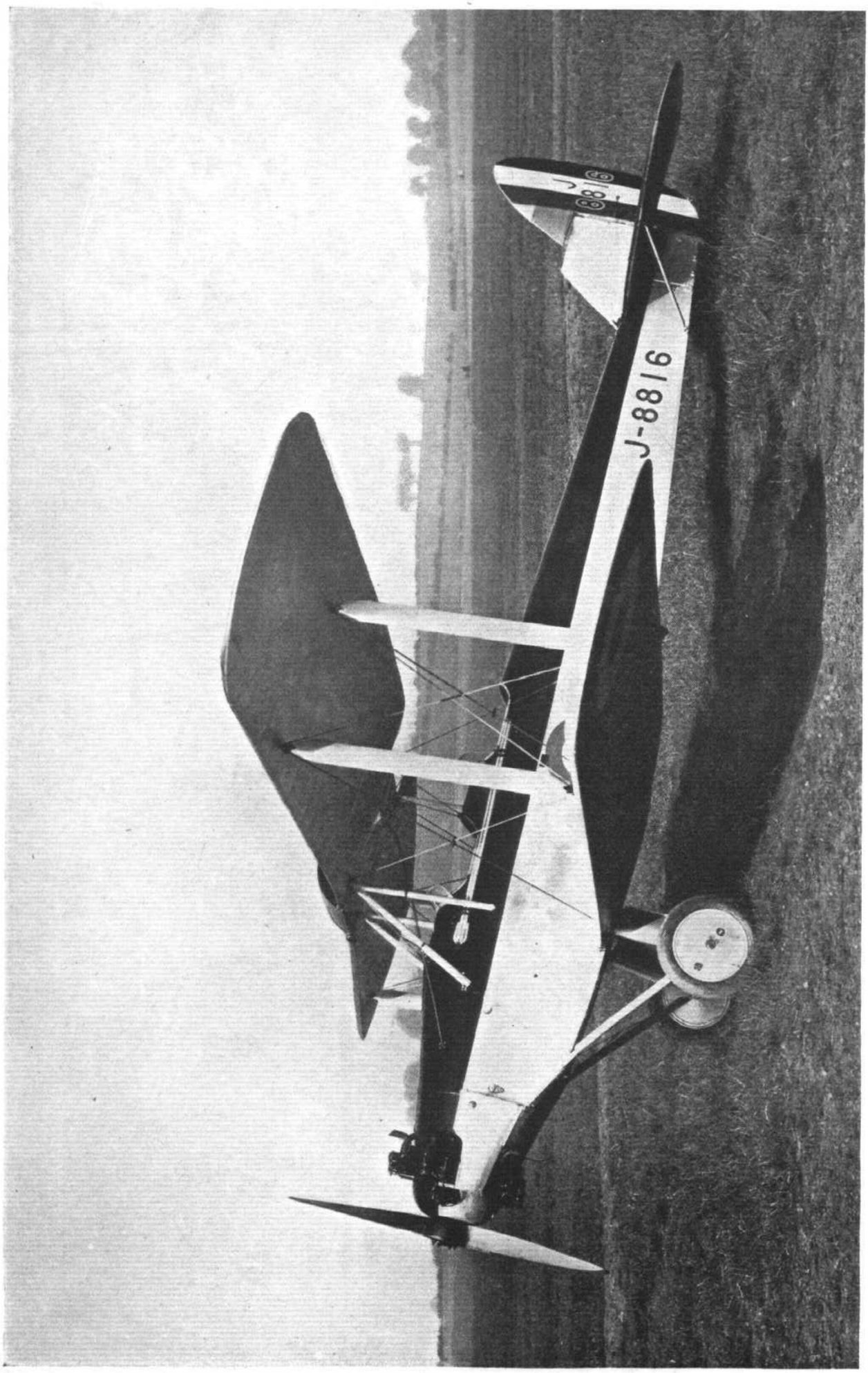
VICKERS "VIRGINIA": Night Bomber, with two Napier "Lion" Engines.

["FLIGHT" *Photograph*

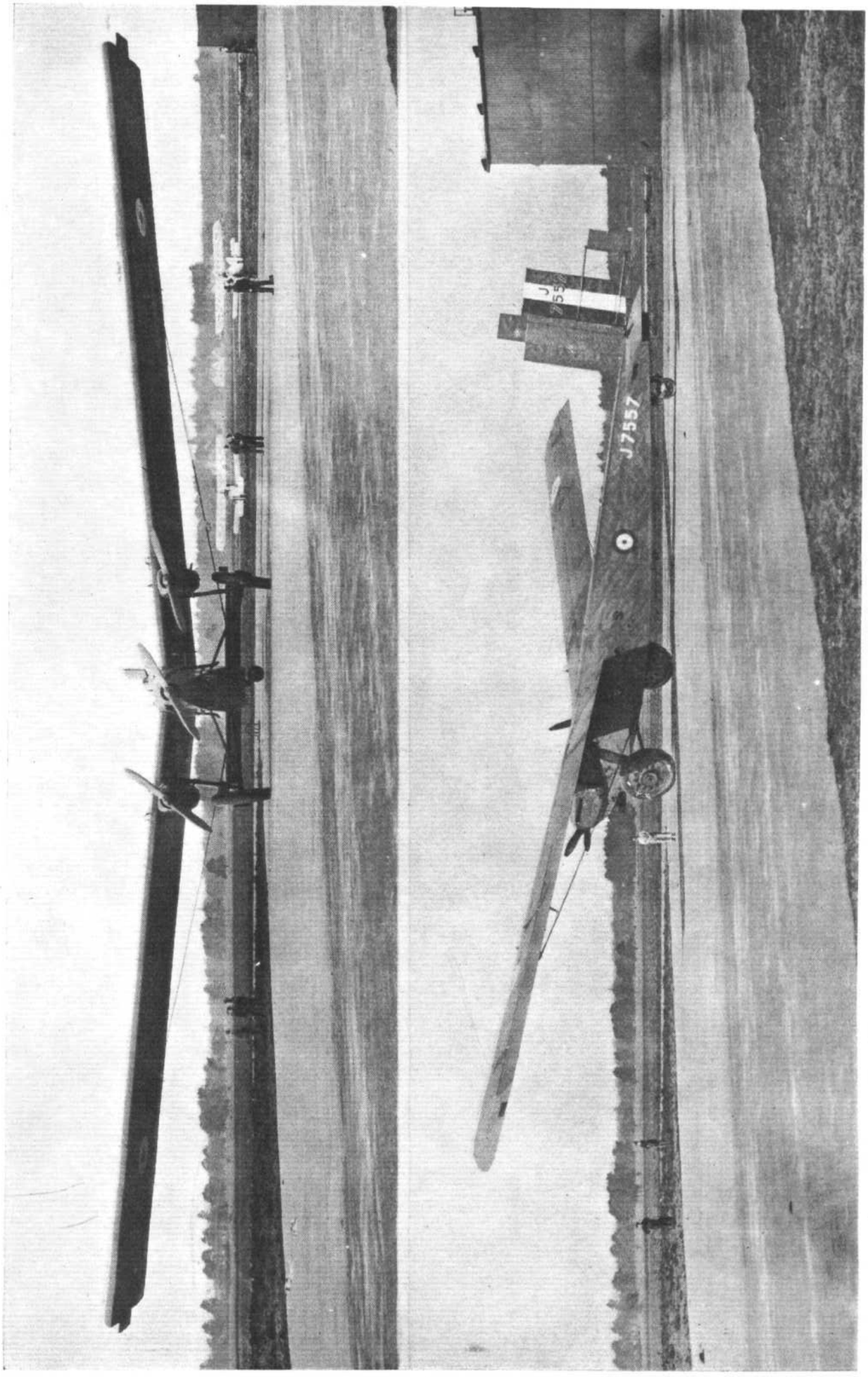


["FLIGHT" Photograph

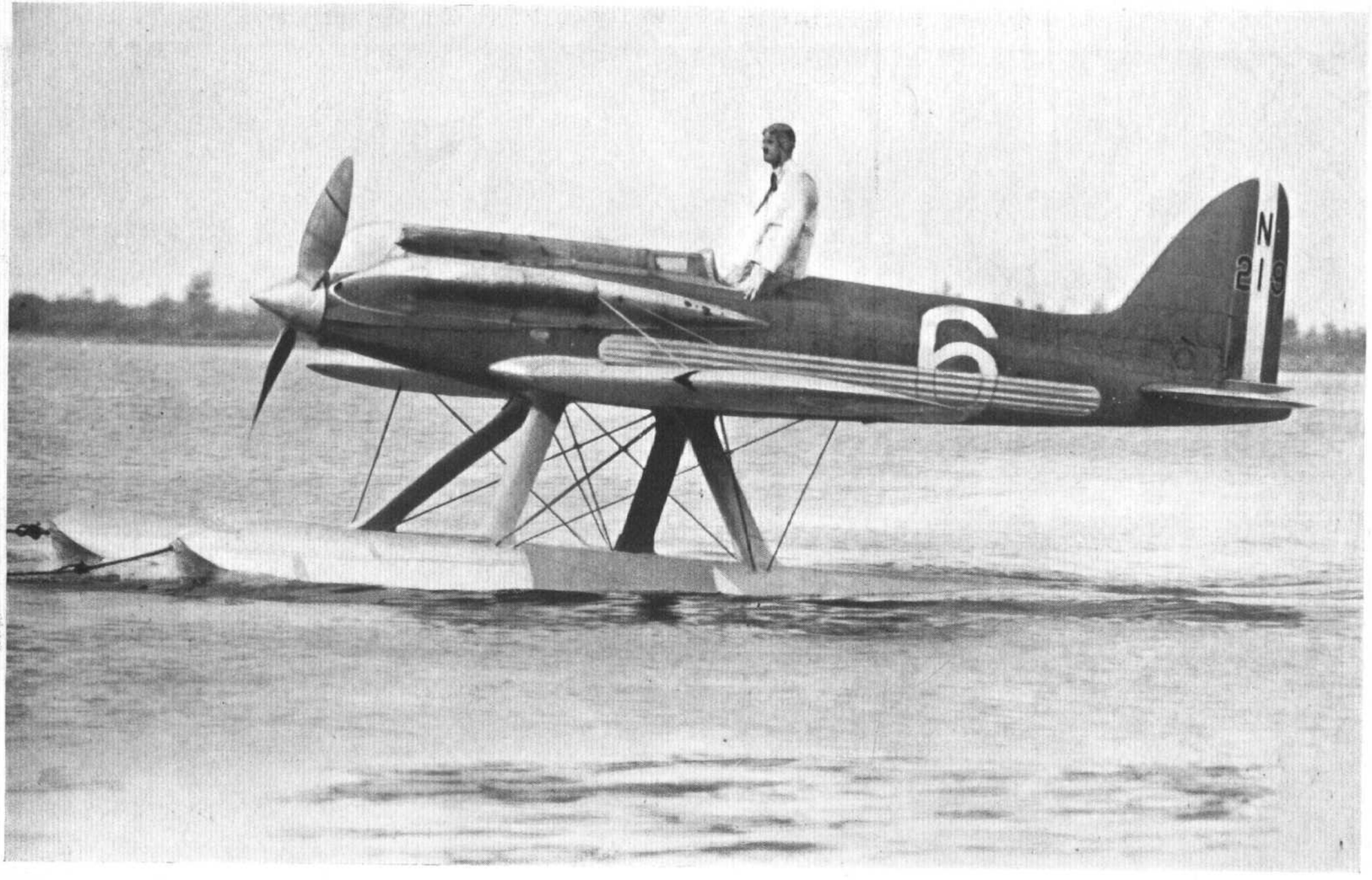
FAIREY III F. : General-Purpose two-seater, with Napier "Lion" Engine.



DE HAVILLAND "GENET-MOTH": Light Training Biplane, with Armstrong-Siddeley "Genet" Engine.



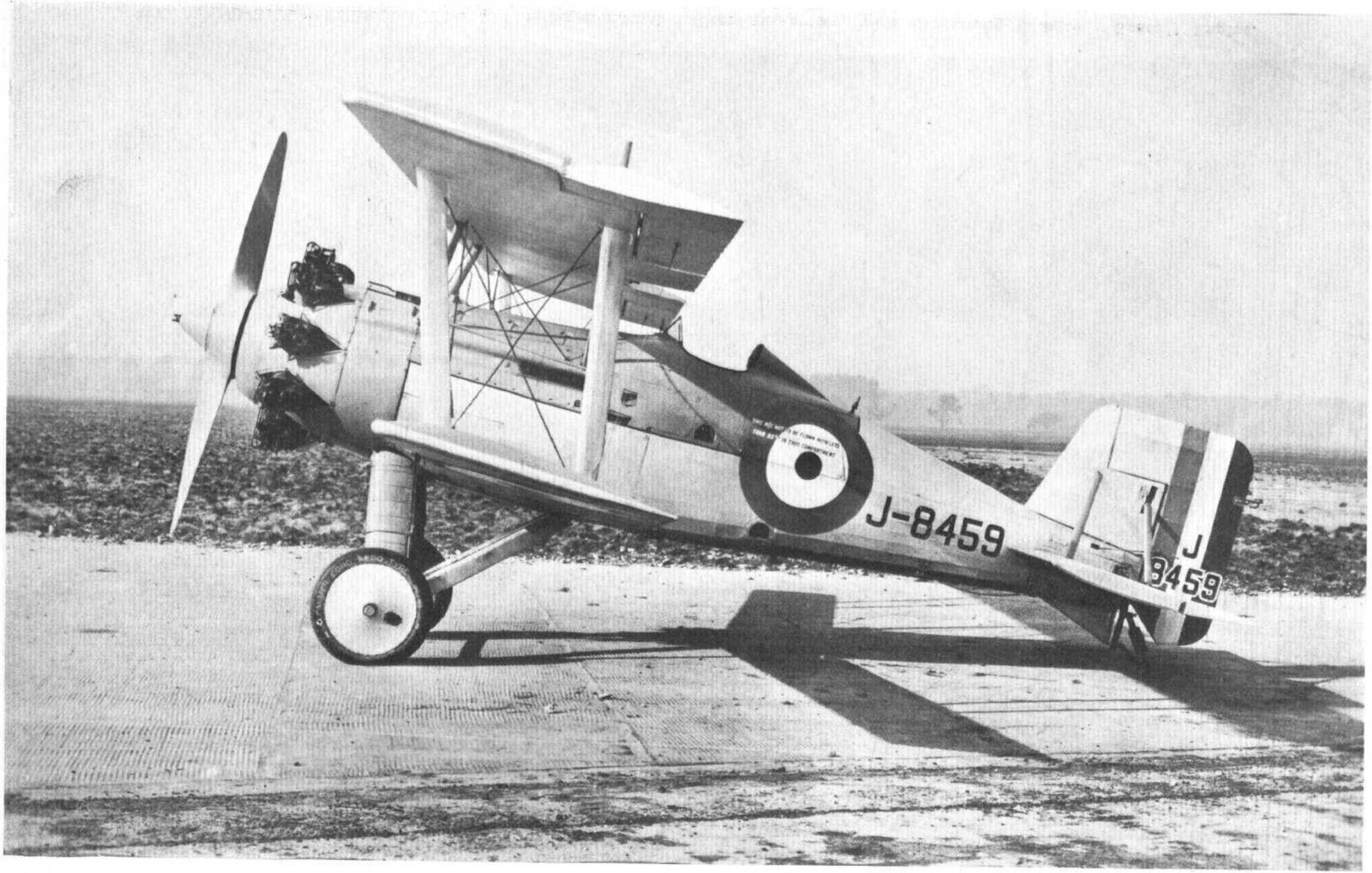
BEARDMORE "INFLEXIBLE": Transport Monoplane, with three Rolls-Royce "Condor" Engines.



SUPERMARINE-NAPIER S.5 : Racing Monoplane (Schneider Trophy Winner), with Napier Racing Engine.

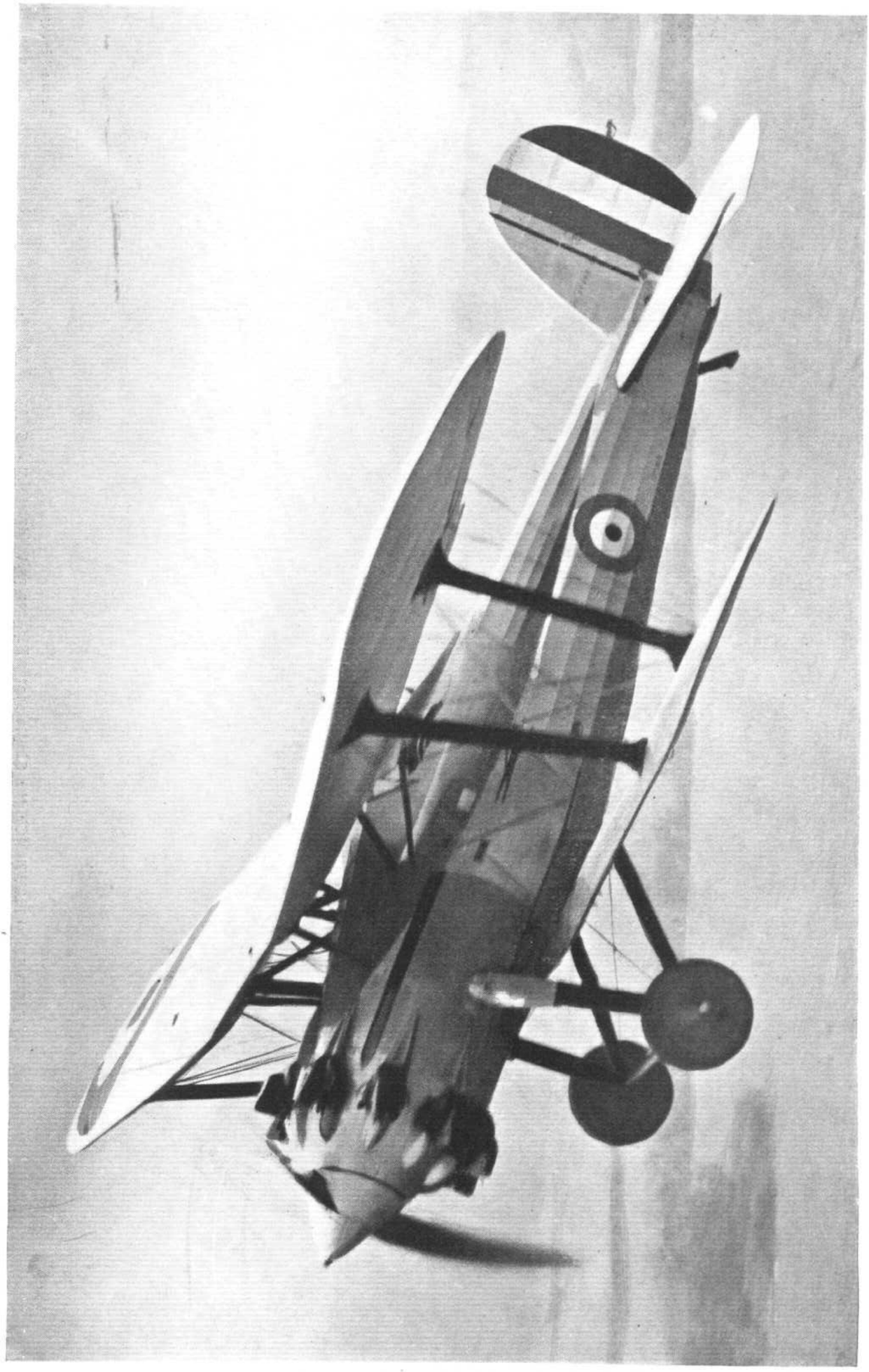
["FLIGHT" *Photograph*

WESTLAND-HILL "PTERODACTYL 1A": Experimental tailless two-seater, with Armstrong-Siddeley "Genet" Engine.



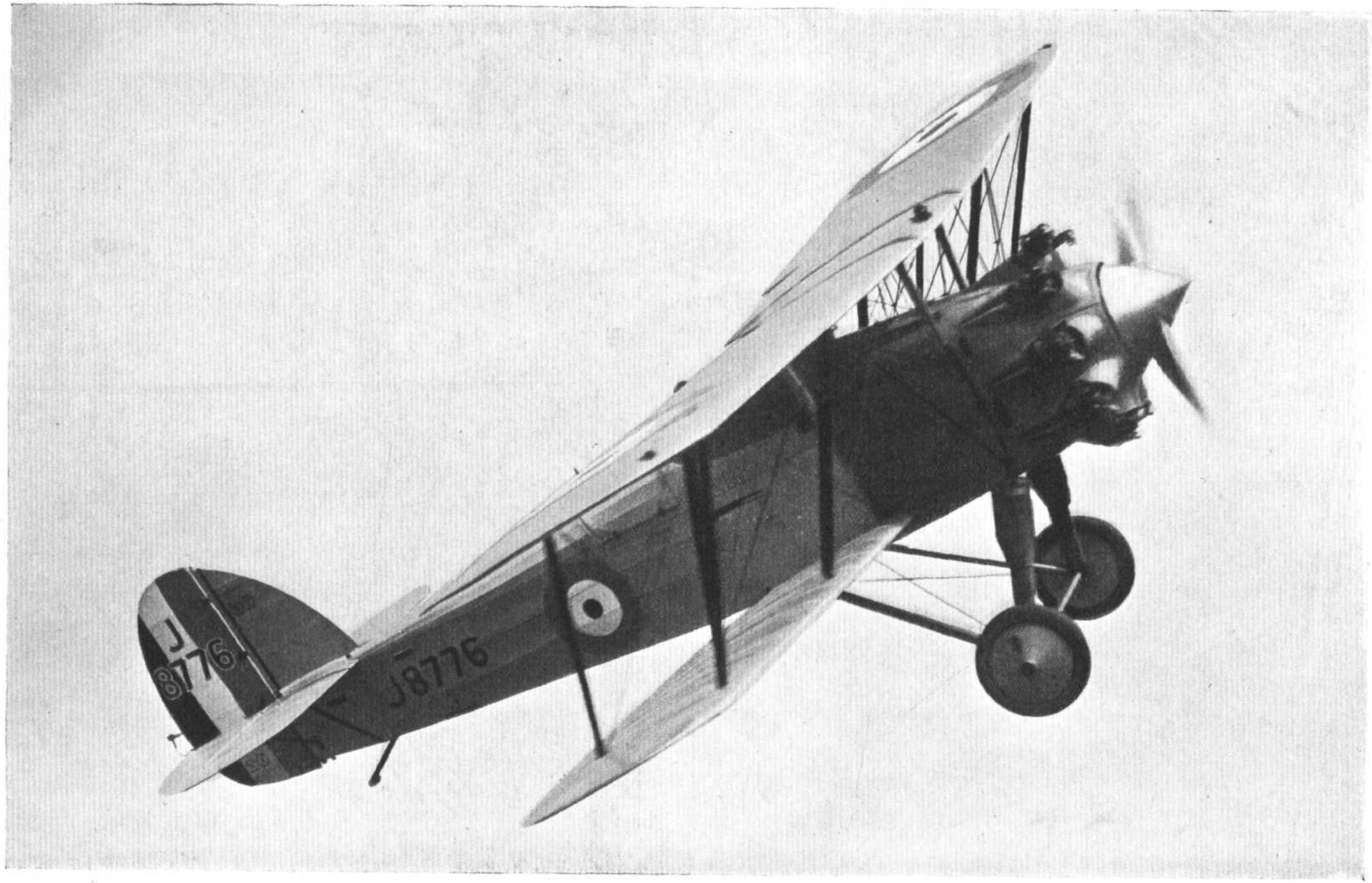
[Official R.A.F. Photograph, Crown Copyright

BOULTON & PAUL " PARTRIDGE " : Single-Seater Fighter, with Bristol " Jupiter " Engine.



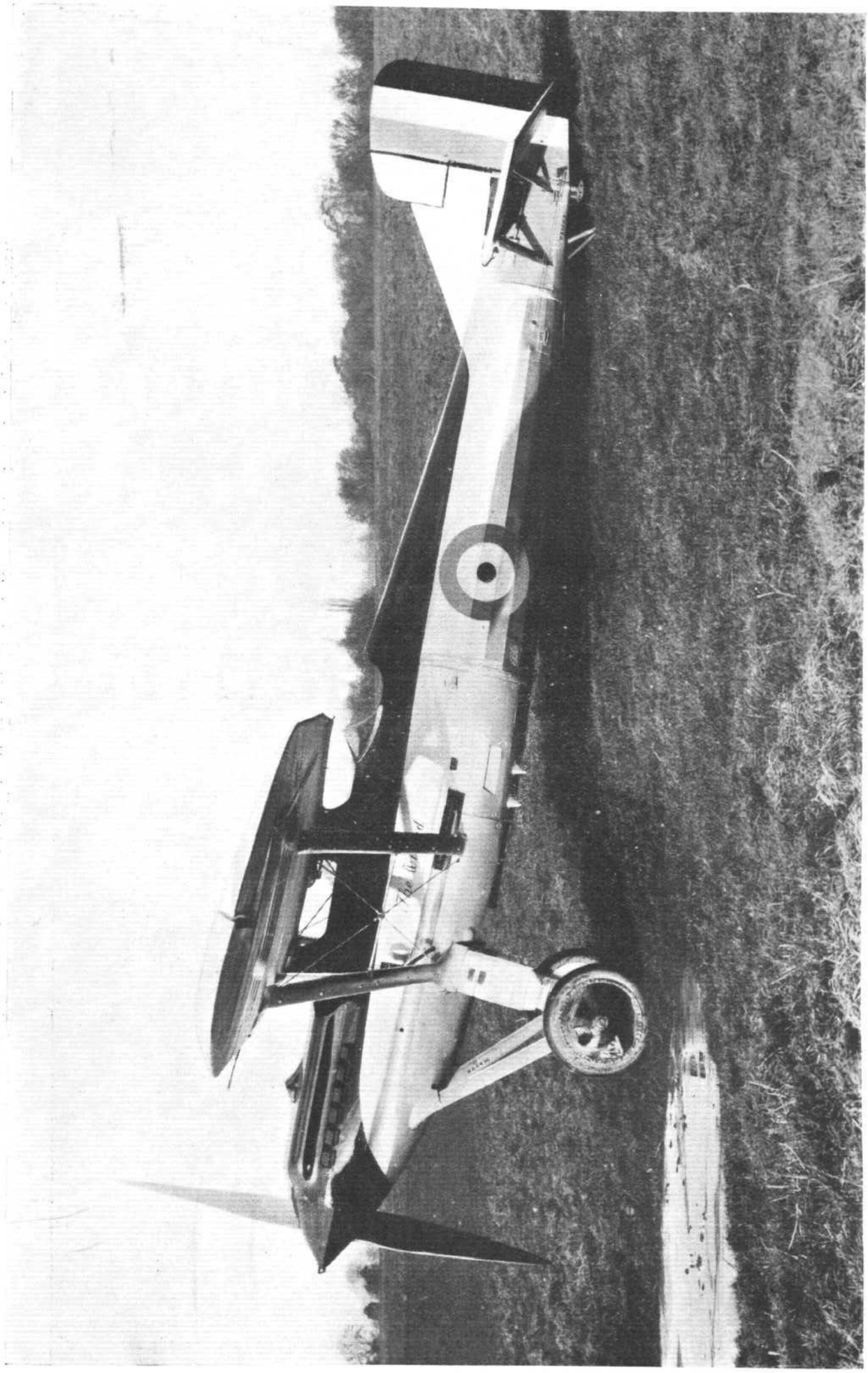
["FLIGHT" Photograph

BRISTOL "BULLDOG": Single-seater Fighter, with Bristol "Jupiter" Engine.

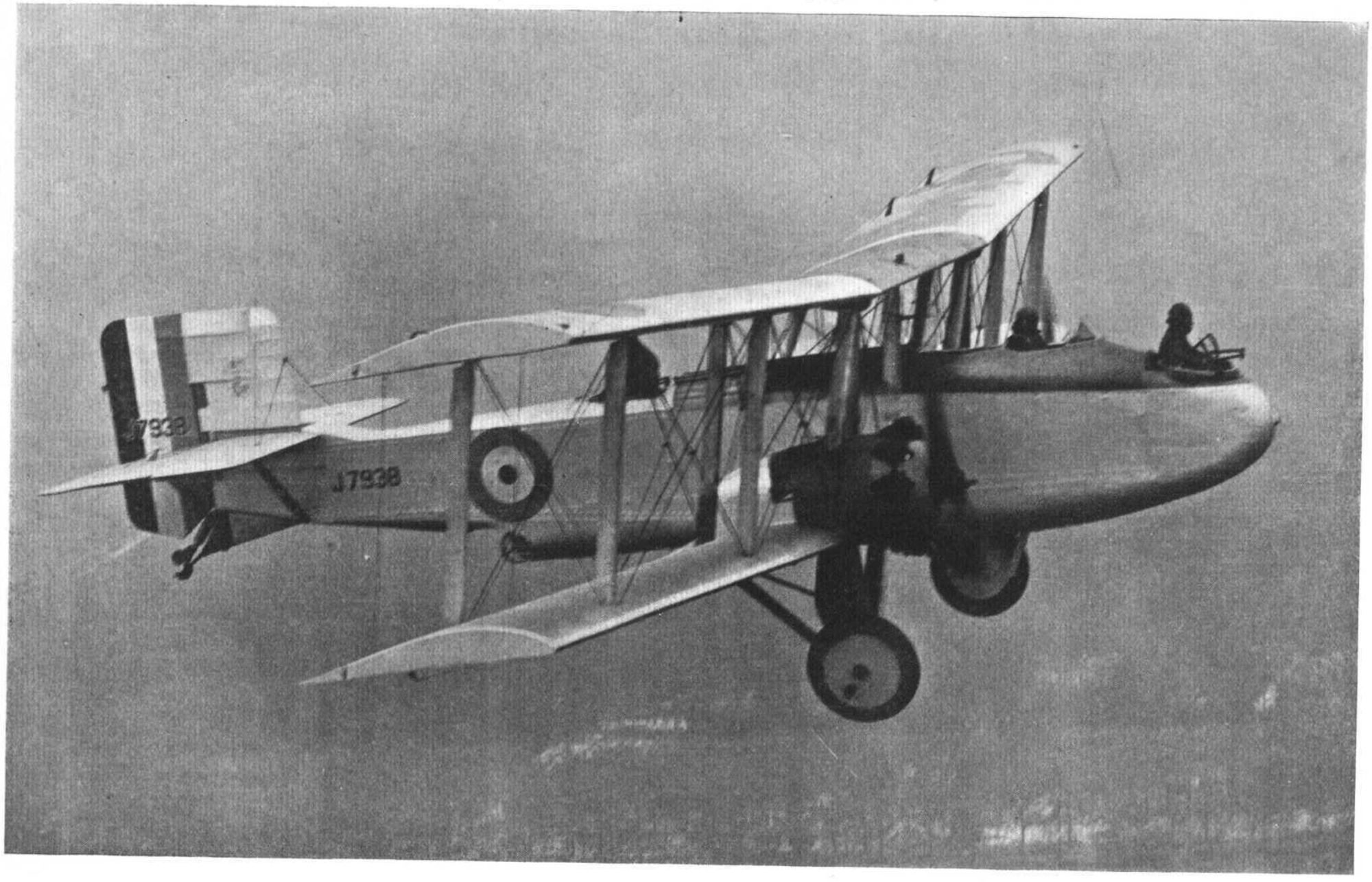


HAWKER " HAWFINCH " : Single-seater Fighter, with Bristol " Jupiter " Engine.

[" FLIGHT " *Photograph*

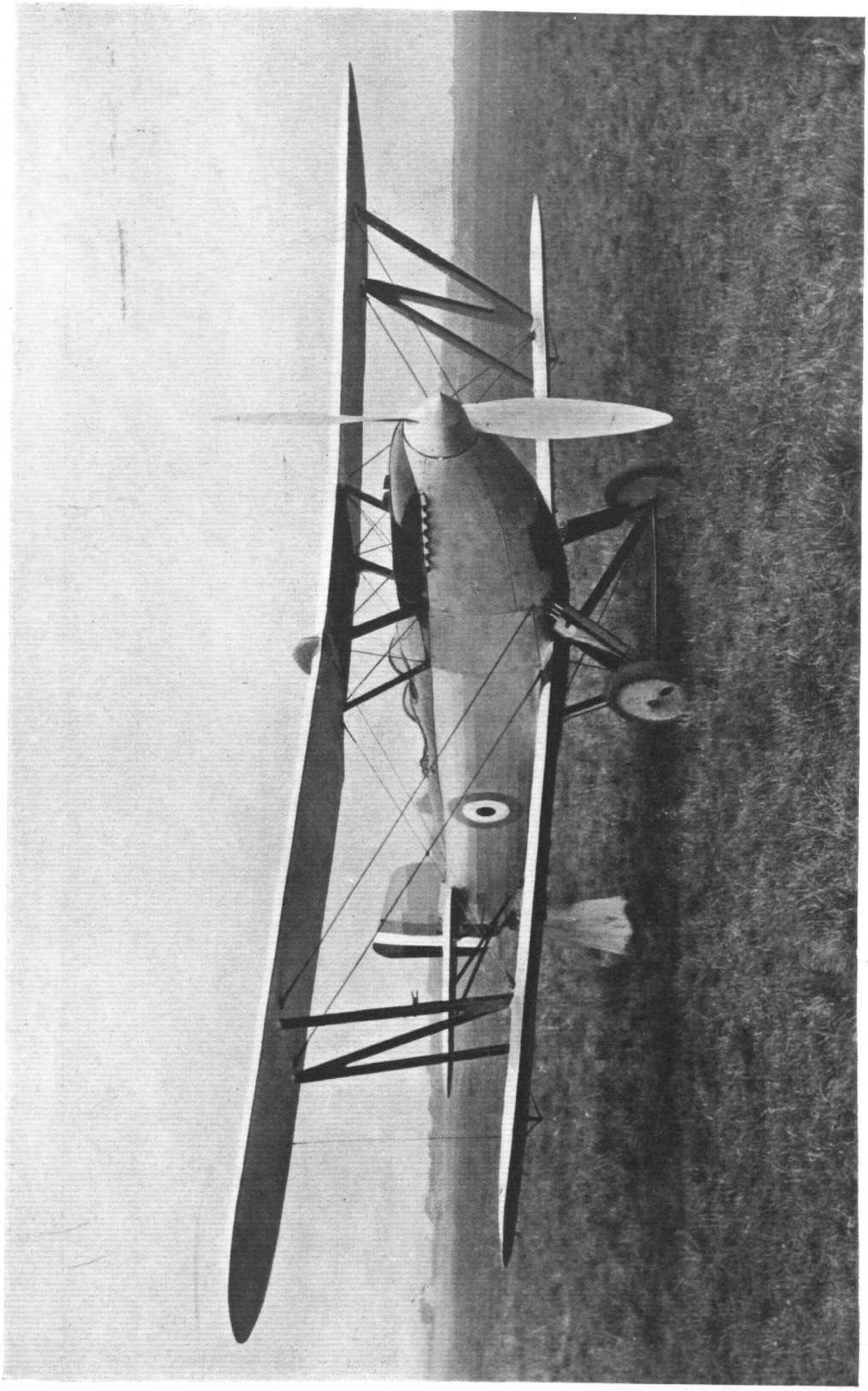


WESTLAND "WIZARD": Single-seater Fighter, with Rolls-Royce F.XI Engine.

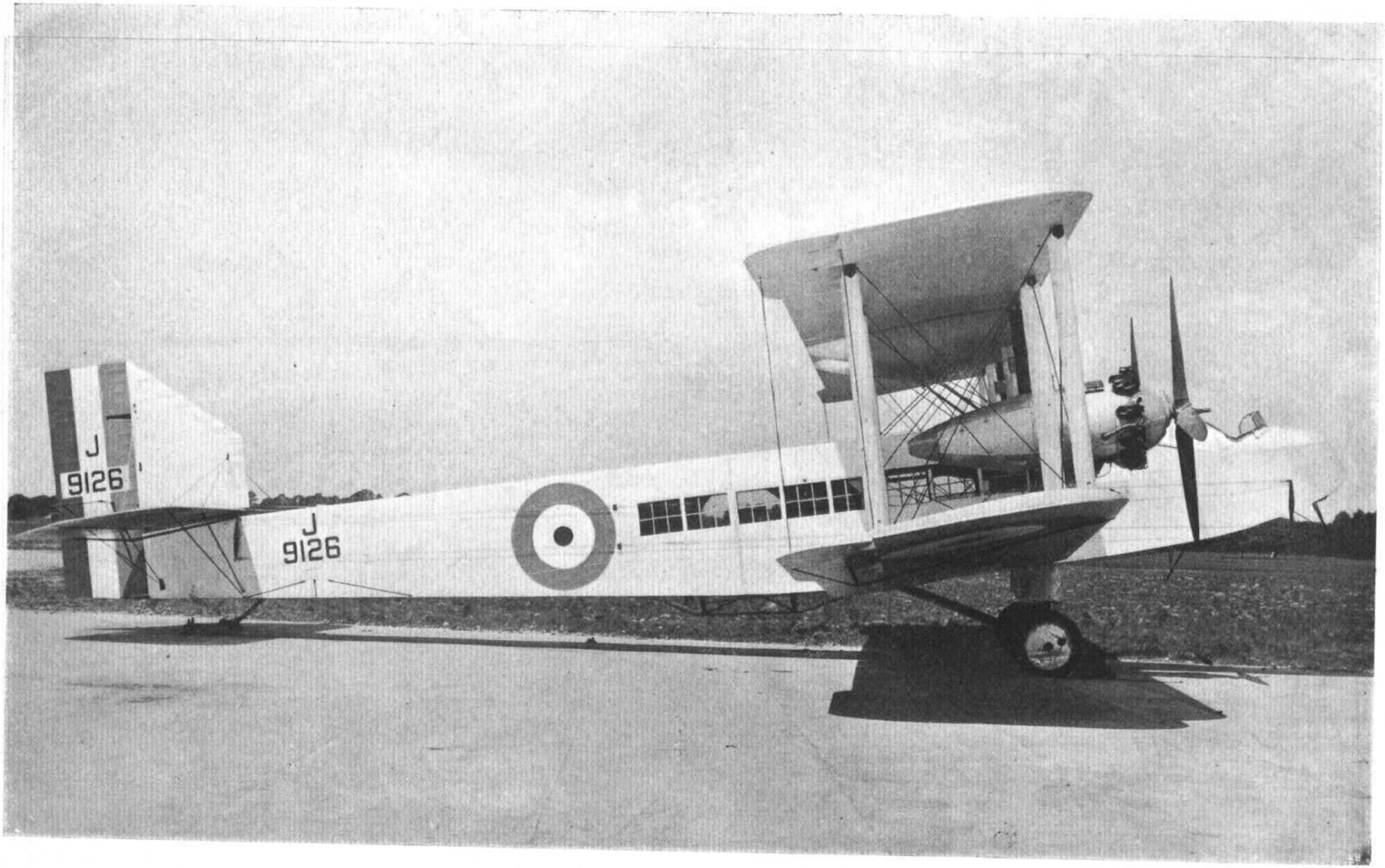


BOULTON & PAUL " SIDESTRAND " : Medium Range Bomber, with two Bristol " Jupiter " Engines.

" FLIGHT " *Photograph*

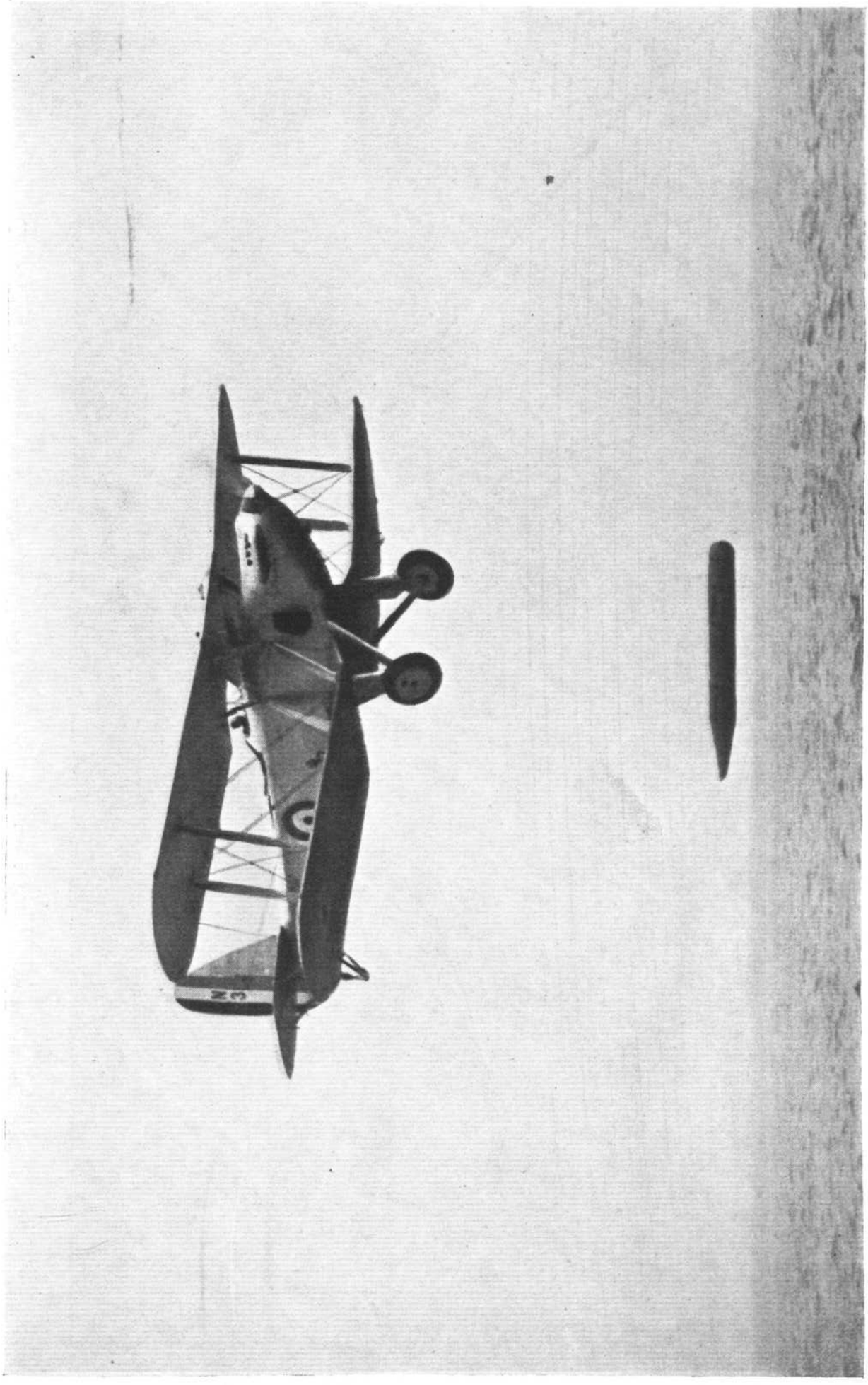


FAIREY "FOX": Two-seater Bomber, with Rolls-Royce F.XI Engine.



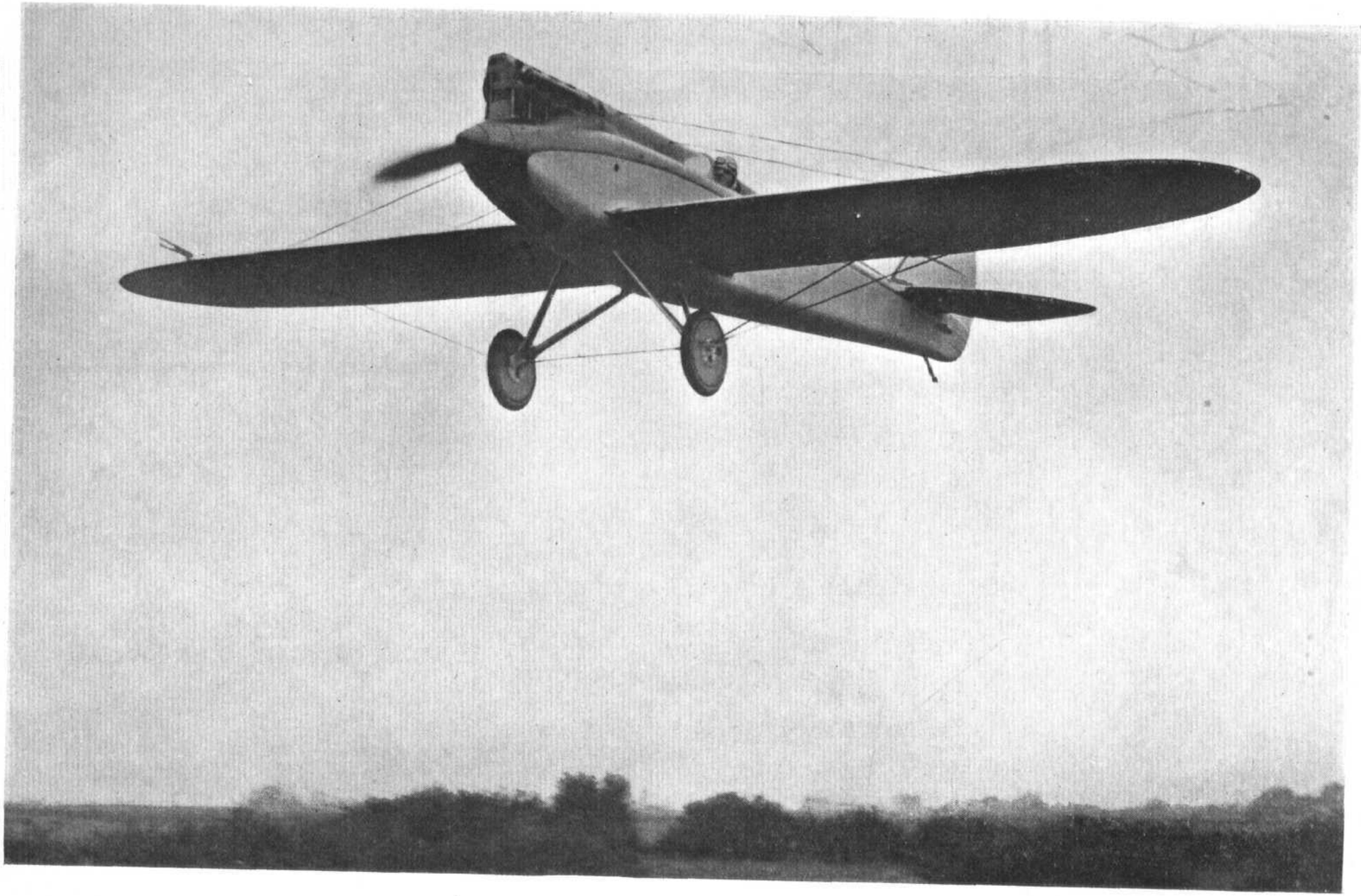
HANDLEY-PAGE "CLIVE": Troop Carrier, with two Bristol "Jupiter" Engines.

[Official R.A.F. Photograph, Crown Copyright

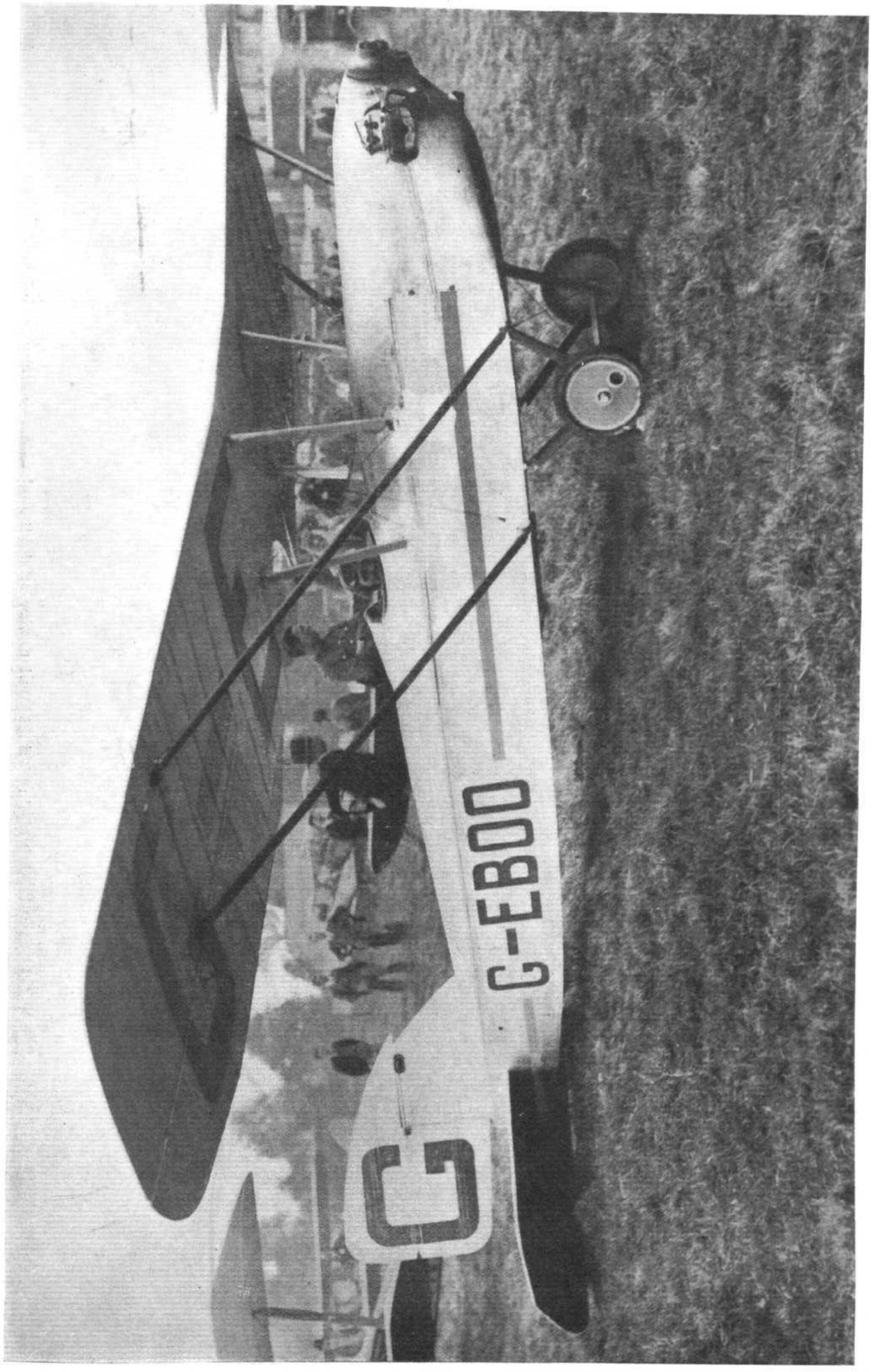


["FLIGHT" *Photograph*

BLACKBURN "RIPON": Torpedo Carrier, with Napier "Lion" Engine.



DE HAVILLAND "TIGER MOTH": Low-power Racing Monoplane, with de Havilland Engine. ["FLIGHT" *Photograph*



["FLIGHT" Photograph

HALTON H.A.C.1 : Amateur-built Light 'Plane, with 30 h.p. Bristol "Cherub" Engine.

VICKERS " VELLORE " : Freight Carrier, with Bristol " Jupiter " Engine.

FLIGHT

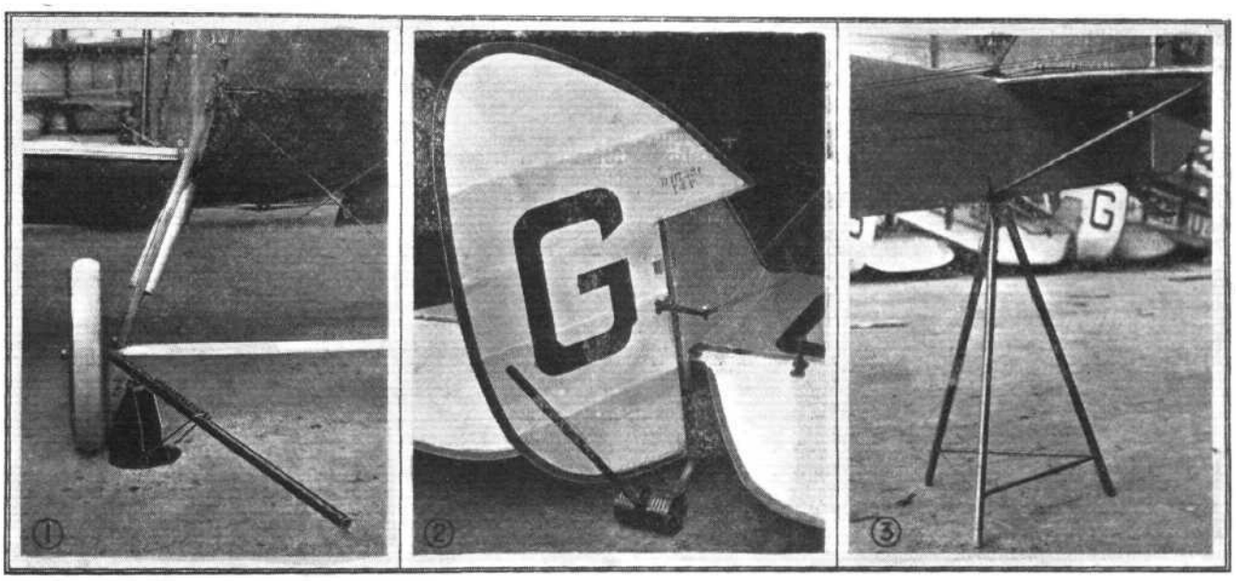
PRIVATE FLYING

A Section of FLIGHT in the Interests of the Private Owner, Owner-Pilot, and Club Member

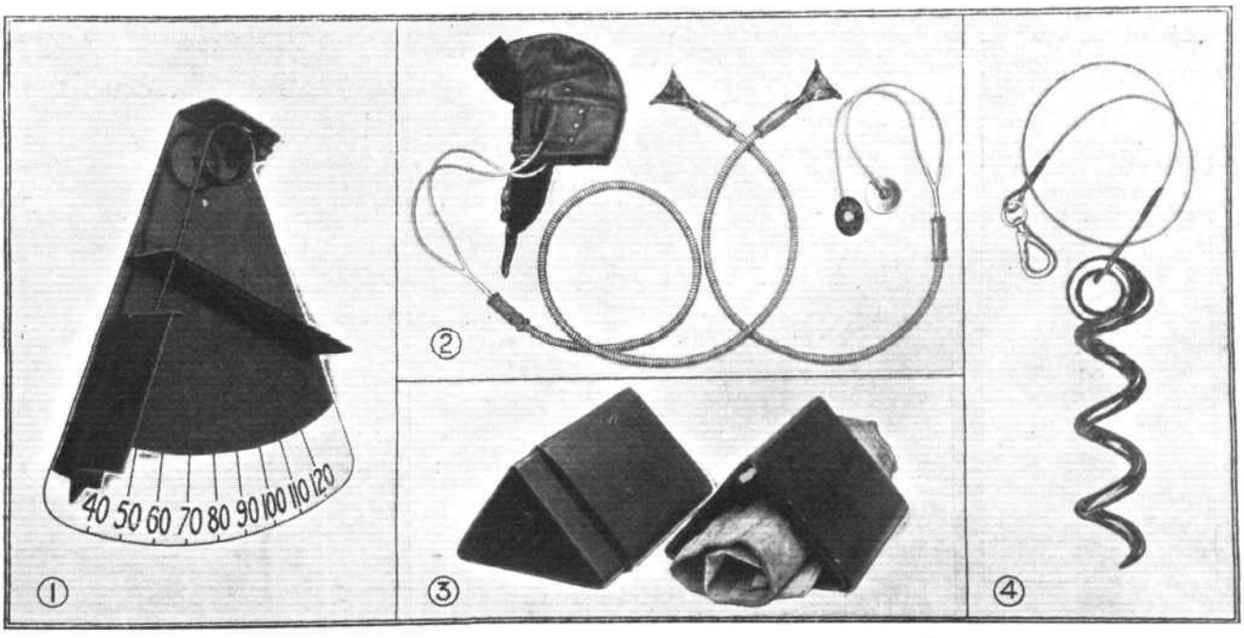
LIGHT 'PLANE EQUIPMENT

THE necessity of gadgets with aircraft is understood. It is the habit to despise them in Service machines because it is thought there are too many of them, but Service machines are put to so many essential experimental purposes apart from actual flying that there is much justification for the generous number. In any case, there is the compensation in normal flight of ignoring half of them. It cannot be said that owners of private light aeroplanes are put to any inconvenience by too many gadgets. They have no more than is absolutely required.

The De Havilland Aircraft Co., Ltd., have produced a few new ones for use with their light plane which fill a decided need and will add to the convenience of handling a machine both on the ground and when flying. One of them is a



LIGHT 'PLANE EQUIPMENT: (1) D.H. wheel jack for changing wheels. (2) D.H. portable tail trolley, which can be carried in the machine. (3) D.H. tail trestle, which easily supports the tail at a convenient height for work on the tail unit.



LIGHT 'PLANE EQUIPMENT: (1) The D.H. Air-speed Indicator. (2) The D.H. telephones. (3) D.H. telescopic chocks, which are also useful as the tool roll container. (4) D.H. screw picket for pegging down the D.H. "Moth" or any other light 'plane.

simple Telescopic chock. There is a pair, of course, one of which is slightly smaller than the other and thus easily slides into it, thereby limiting storage space. They are made of 14-gauge duralumin, and a pair weighs 1 lb. 14 ozs. Therefore, they are extremely light and can be carried in the locker on the D.H. "Moth." One other asset is that they form a natural container for the standard D.H. "Moth" tool roll.

It is wise to have them on board when touring, for it is otherwise necessary to search for suitable chocks for the wheels when revving up, and they are not always easy to pick up. To rely upon willing but innocent spectators to hold the machine down is risky. They, not unnaturally, often think a machine is solid throughout.

The D.H. type Telephones have also been designed. They are neat, light and comfortable, and are adaptable for any aircraft by alteration to the length of inter-cockpit connecting tubes. The whole set consists of two pairs of earphones with flex and Y pieces, two mouthpieces, connecting tubes, and necessary clips. A side-tone unit can be fitted if desired, at a slight extra cost. This fitting enables the speaker to hear his own voice when speaking in the air. It is comprised of two short lengths of tube brazed together in parallel, with a small hole drilled through both tubes in the inside centre. This unit is inserted in the centre of the connecting tubes. By returning the sound of his voice to the speaker it enables him to vary it, which is particularly advantageous to the novice, who is inclined to shout because he imagines that the drone of the engine cuts out his voice.

The D.H. Airspeed Indicator is a very simple instrument fitted on the bottom of the front starboard strut in a position prominent to the pilot in the cockpit, and is clear of the slipstream. It works against a spring on the weathervane principle, and serves as a useful check on the airspeed indicator in the cockpit. One other value it gives is during landing, for the pilot may watch the approaching ground and still observe the indicator reading on the strut out of the corner of his eye. There is no inconvenient ducking of the head under the combing then to read the dashboard indicator.

The whole unit weighs 8 ozs. It is made of 16-gauge duralumin, and the spring is 13-gauge phosphor-bronze wire.

Portable Screw Pickets are also produced by the company. They are a necessity for pegging down the machine on tour away from aerodromes. Constructed of duralumin bar, each set of three weighs between 3 and 4 lbs. The cables with snap hooks are made of proper length for the D.H. "Moth," but the pickets can be used for other machines in the light 'plane class by variation of the cable length. They can be easily stowed in the machine. The cable is 20 cwt., and the picket is $\frac{5}{8}$-in. diameter duralumin bar.

The D.H. "Moth" garage-type Tail Trolley has been specially designed for the use of Clubs, Flying Schools, and Light Aeroplane Service depots, where it is necessary to move many machines in and out of hangars at short notice. It is, of course, too large to be carried in the machine conveniently, so a smaller type is also produced which will just about fit in a locker. Standing upright, the user merely hooks the trolley to the lug on the tail and with light pressure on the tubular handle the machine can be wheeled about easily. For stowage (in locker) the handle is quickly detachable from the axle, which part fits in a spring clip under the pilot's seat. The handle is 17-gauge, 1-in. diameter steel tube. It merely fits into a spring clip on the wheel axle. The wheels are of 20-gauge steel, and the whole trolley weighs 4 lbs.

There is also a D.H. "Moth" Tail Trestle built in the form of a tripod; it is very simple and effective. Finally, there is a wheel-jack which affords convenient handling of the machine when it is necessary to change the wheel or grease the axle.

All this equipment can be purchased by private owners, and the prices obtained from the De Havilland Company.

LIGHT 'PLANE CLUBS

London Aeroplane Club, Stag Lane, Edgware. Sec., H. E. Perrin, 3, Clifford Street, London, W. 1.
Bristol and Wessex Aeroplane Club, Filton, Gloucester. Secretary, Capt. C. F. G. Crawford, Filton Aerodrome, Patchway.
Hampshire Aero Club, Hamble, Southampton. Secretary, H. J. Harrington, Hamble, Southampton.
Lancashire Aero Club, Woodford, Lancs. Secretary, C. J. Wood, Oakfield, Dukinfield, near Manchester.
Midland Aero Club, Castle Bromwich, Birmingham. Secretary, Maj. Gilbert Dennison, 22, Villa Road, Handsworth, Birmingham.
Newcastle-on-Tyne Aero Club, Cramlington, Northumberland. Secretary, A. H. Bell, c/o The Club.
Norfolk and Norwich Aero Club, Mousehold, Norwich. Manager, F. Gough, The Aerodrome, Mousehold, Norwich.
Nottingham Aero Club, Hucknall, Nottingham. Hon. Secretary, Cecil R. Sands, A.C.A., Imperial Buildings, Victoria Street, Nottingham.
The Scottish Flying Club, 101, St. Vincent Street, Glasgow. Secretary, Harry W. Smith.
Southern Aero Club, Shoreham, Sussex. Secretary, C. A. Boucher, Shoreham Aerodrome, Sussex.
Suffolk Aeroplane Club, Ipswich. Secretary, Maj. P. L. Holmes, The Aerodrome, Hadleigh, Suffolk.
Yorkshire Aeroplane Club, Sherburn-in-Elmet, Yorks. Secretary, Lieut.-Col. Walker, The Aerodrome, Sherburn-in-Elmet.

LONDON AEROPLANE CLUB

REPORT for week ending June 24.—Flying time, 55 hrs. 55 mins.; dual-nstruction, 33 hrs. 25 mins.; solo flying, 22 hrs. 30 mins.

Solo flying: A. S. Miller, H. M. Samuelson, R. Sanders Clark, J. A. Brewster, F. C. Fisher, Art. Fowler, W. B. Michelmore, S. M. Nesbitt, Will Hay, Major Beaumont, E. E. Stammers, J. C. V. K. Watson, W. Roche-Kelly, J. J. Hofer, P. W. Hoare, Major R. M. S. Veal.

The following members received flying instruction:—C. Reilly, B. Carey, C. Peckham, E. H. Thierry, C. W. Bonniksen, H. Sutton, H. R. Presland, P. A. Wills, D. H. Corsellis, Miss Wilson, Miss H. Cholmondeley, J. R. Rymill, G. E. Clair, E. G. Amsden, Miss Fletcher, E. A. Lingard, J. R. A. Stroyan, J. A. Crane, A. J. Miller, R. Drysdale Smith, A. O. Wigzell, R. F. G. Adams,

["FLIGHT" *Photograph*

This is the D.H.53 monoplane (Bristol "Cherub" engine), owned by the R.A.E. Club at Farnborough, who have reconditioned it to the extent that only the wings, engine, etc., were not built by them.

Royal Air Force Display.—In view of the large number of Service aircraft which will be employed at Hendon Aerodrome in connection with the Royal Air Force Display and the fact that Stag Lane Aerodrome will also be used to accommodate Service aircraft, the Club will be closed down on Friday, the 29th, and Saturday, June 30.

BRISTOL & WESSEX AEROPLANE CLUB, LTD.

REPORT for week ending June 23.—Total flying time, 16 hrs. 15 mins.; dual instruction, 9 hrs. 15 mins.; solo, 3 hrs. 15 mins.; passengers (11 flights) 2 hrs. 40 mins.; cross-country (1 flight), Filton—Ramsgate.

Under instruction with Mr. Bartlett: Messrs. Amory, Greenhill, Allinson, Davis, Tinson, Hughes, Thomas, Godfrey, Lysaght, Chopra, Girdlestone, T. H. Clarke, Byrnes, Laws, Suddes.

"A" Licence Pilots (solo): Messrs. Downes-Shaw, Bathurst, Hall, Tratman, and Jopp.

Mr. Downes-Shaw left Filton for Ramsgate on Friday afternoon in his private "Moth." The weather was rather rough but the sky was clear.

Mr. A. P. Godfrey carriedlout re-qualifying test for "A" Licence during the week.

CINQUE PORTS FLYING CLUB

REPORT for week ending June 23.—Machine G—EBWC; total flying time, 13 hrs. 20 mins.; test flights, 20 mins.

Dual instruction (with Maj. Clarke): Mr. Braddell, 1 hr. 20 mins.; Miss Allen, 1 hr.; Miss Tagart, 1 hr.; Mr. Story, 15 mins.; Mr. West, 2 hrs. 15 mins.; Capt. Took, 3 hrs. 45 mins.; Mr. K. Edgson Wright, 15 mins.; Mr. Douglas, 15 mins.

Joyride (with Maj. Clarke): Miss Joy Upton, 10 mins.

Soloists: Mr. West, 30 mins.; Capt. Took, 5mins.; Mr. Story, 1 hr. 30 mins.; Mr. R. Dallas Brett, 1 hr.; Mr. K. Edgson Wright, 45 mins.; Mr. Douglas, 45 mins.

On Wednesday, June 20, Mr. R. West of the Guards Depot, Canterbury, did an excellent first solo, including two very good landings. He had 7 hrs. 45 mins. dual instruction. This was an excellent show. The next day, Thursday, was unfortunate. Capt. G. E. Took was launched solo after 9 hrs. 45 mins. dual instruction. He did one circuit and made a good landing, but the next time he came in, he was unfortunate enough to land on the edge of a shallow depression, which disfigures the Northern edge of our aerodrome. When our "Moth" had been restored to a normal position, it was found that among other things, a new rudder, two new top planes and new centre section struts were advisable. Capt. Took, who was fortunately unhurt, annexed the remains of the "prop."

The Club's thanks are due to our ground engineer, Mr. R. H. Wynne, who laboured mightily with some borrowed assistance, for which the Club is also

grateful. Had it not been for some misunderstanding in ordering spares, the machine would have been flying again on Saturday afternoon—a remarkably smart piece of work, upon which we heartily congratulate Mr. Wynne, who found time to include a top overhaul in the job.

The first General Meeting of the members was held on Wednesday night and a new committee was elected, consisting of Maj. C. F. Krabbe, O.B.E., of Dymchurch, Lt.-Cmdr. Gubbins, R.N. (Rtd.) of Canterbury, Lt. A. V. C. Douglas of Canterbury, Capt. G. E. Took of Dover, Mr. K. Edgson Wright of Ashford, Mr. Stuart Lewis of Postling, Mr. M. S. Faraday of Canterbury, Mr. W. H. Evernden of Faversham, Mr. A. W. Hunt of Dover, Mr. H. E. Twaites (Hon. Treasurer) of Hythe, and Mr. R. Dallas Brett (Hon. Sec.) of Hythe.

We had the pleasure of making the acquaintance of Mr. Downes Shaw, Chairman of the Bristol Club, on Saturday, when he arrived in his "Moth" S.T.

HAMPSHIRE AEROPLANE CLUB

REPORT for week ending June 24.—Total flying time, 31 hrs. 45 mins. Dual instruction, 14 hrs. "A" Pilots, 8 hrs. 15 mins. Solo, 6 hrs. Passenger flights, 2 hrs. 40 mins. Tests, 45 mins.

Instruction (with Flt.-Lt. Swoffer): Mr. Westlake, Couchman, Colls, Brewster, Commander Hunt, Knight, Cator, Curtis-Nuthall, Dr. Bowden, Graham-Gibbs, Wells, Tobutt, Turner, Mitchell, R. King, Lichfield-Speer, Miss Hume, Dalyrymple, Smith, Starkey, Wroughton, Cripps, Schreiber, Mandeville, Mole.

"A" Pilots.—Mr. Fry, Ranald, Mrs. Ranald, Heath, Cripps, Flt.-Lt. de Burgh, Parker, Heineman, Fagan, Capt. Kirby.

Soloists:—Mr. Perfect, H. King, Tillard, Miss Grace, Whittle, Southey, Wroughton, Schreiber.

Passengers:—Mrs. de Burgh, Mr. Ovett, Mrs. Duberly, Miss Smallwood, Mr. Redwood, Finch, Prate, Tarver, Mr. Fry, Mrs. Cator, Mrs. Tobutt, Mr. King, Mrs. King, Turner, Mondon, Seeley.

Miss Grace successfully carried out her tests for her "A" licence this week, and is our first lady pilot to take her licence. This brings our total number of "A" licences up to 39. On Wednesday, Flt.-Lt. Swoffer flew the Avian to Bournemouth, landing on the racecourse, to give dual instruction to some of the Bournemouth members. It is hoped that it will be found able to do this every week, and thus in time form a branch of the club in this town.

Considerable excitement prevailed at the club on Monday and Tuesday, when Capt. Guest, and party arrived to welcome Miss Earhart. Machines arrived at all times during the day, with members of the Press who were anxious to obtain the first authentic news. Flt.-Lt. Swoffer went up on Tuesday to be one of the escort of the "Friendship," but was compelled to return owing to low clouds and rain.

We thought we had one of the largest aerodromes in the country, but Mr. Scott-Hall does not think so apparently, for when landing, thinking he might over-run, went through a barbed wire fence with a Moth. We have some spare barbed wire, but unfortunately no new bottom planes, so that the machine is held up awaiting the arrival of them. Sunday was a fine day; it would be; we had one machine.

NEWCASTLE-UPON-TYNE AERO CLUB

REPORT for week ending June 24.—Total flying time, 30 hrs. 50 mins. Instruction, 9 hrs. 45 mins. Solo, 1 hr. 15 mins. "A" Pilots, 15 hrs. 5 mins. Passengers, 3 hrs. 45 mins. Tests, 1 hr.

Instruction (with Mr. J. D. Parkinson): Miss Slade, Mrs. Kish, Messrs. Bohane, MacKay, Kendrick, Alton, and Temple.

Mr. Glenny, Secondary Dual.

Soloist: Mr. Jackson.

"A" Pilots: Mrs. Heslop, Messrs. H. Ellis, Heppell, W. B. Ellis, R. N. Thompson, C. Thompson, Turnbull, Lloyd Browne, Runciman, Irving, N. S. Todd, Dr. Dixon, and Dr. Alderson.

This week we have sampled a portion of the atrocious weather which seems to fall to the lot of the Yorkshire Club, but we take this opportunity of thanking them for their hospitality on the occasion of our cross-country training flight on Wednesday last, from Cramlington to Sherburn, and return via Catterick. The party consisted of the three Club Moths, and Miss Leathart's Grasshopper.

On Saturday, Mr. Jackaman flying his Moth G-EBRT, called at the aerodrome.

NOTTINGHAM AERO CLUB

FLYING report for week ending June 22.—Total flying time, 27 hrs. 40 mins. Dual, 13 hrs. 35 mins.; solo ("A" licence), 2 hrs.; solo (under instruction), 8 hrs. 50 mins.; passenger flights, 1 hr. 50 mins.; tests, 1 hr. 25 mins.

Dual instruction, with Mr. Martin: Miss Bostock and Messrs. Selvey, Bradley, F. Hatton, Taylor, Shipside, Glenn, Mc William, Hancock, Calladine, Lucas, and S. Hatton.

Solo "A" Licence: Messrs. Blake, Hallam, Cox, and Ball.

Solo under instruction: Messrs. Selvey, Bradley, Glenn and Pilgrim.

Service pilot members: Messrs. Spaight and S. Hatton.

Passenger flights with Mr. Martin: Mrs. Selvey, Miss Flinders, Miss Matthews, Messrs. Thirlby, Linsley, Bradley and Fitzpatrick.

Passenger flight, with Mr. A. C. Ball: Mr. Cottrell.

Congratulations to Messrs. Bradley, Glenn, and Selvey, who are now soloists and who put up excellent shows. Also to B. Pilgrim, who successfully passed his tests for his R.A.C. ticket, doing his height test well up in the clouds. Also to Harold Ashworth for having the distinction of being our first private owner. He is one of our recent very keen *ab initio* pilots and has bought a very smart "Avian." Mr. Martin, our instructor, flew with Mr. Ashworth from Woodford Aerodrome on Friday last to Hucknall in 22 mins. (58 miles). We also wish to extend our warmest greetings to Miss M. Bostock for having the distinction of being our first lady pilot member, and we hope to see her flying solo before long.

Since the Bristol Air Pageant to the end of May, we have experienced a run of bad luck due entirely to circumstances over which we had no control However, we now have two kites doing great work, and since June 1 we have been full out and hope to keep telling the tale every week in future.

SUFFOLK AEROPLANE CLUB

REPORT for week ending June 23.—Flying time, 21 hrs. 15 min.; instruction, 10 hrs. 50 min. "A" and "B" pilots, 1 hr. 20 min.; solo under instruction, 5 hrs. 40 mins.; passenger flights, 2 hrs. 50 min.; tests, 35 mins.

Passengers with Mr. Lowdell, 12; with Mr. Prentice, 1. Instruction with Mr. Lowdell: Dr. Mildred Yate, Miss Edwards, Miss Rhodes, Dr. Dunn, Messrs. Goodwin, G. Smith, Jolly, T. and B. F. Marriage, Peck and Wedd.

Solo under instruction: Miss Edwards, Messrs. Verney, G. Smith, Hanson, Jolly, Billington and Peck.

"A" and "B" pilots: Dr. J. C. Sleigh, Mr. C. N. Prentice, and F/O. Birt.

The week under review has been the busiest in the history of the club. Fine weather, two machines in commission and a slight increase in air-mindedness in East Anglia have contributed towards this happy end. The flying hours have been about the figure they should be every week, and it is to be hoped that they will continue to increase. We have all the facilities for flying possessed by any other club, so that our low figures are proof that new members can, if they care to attend regularly at the aerodrome learn to fly very quickly at Hadleigh and without long periods of waiting for a flight. Mr. F. Verney has completed his tests for his "A" licence, while Messrs. H. Billinton and C. Hanson have completed their figures of eight. The R.A.F. having let the Army down, the club has been asked to arrange an air display in co-operation with troops of the 4th Division at the Colchester Pageant on July 19, in aid of various charities. This is one of the most important annual events in the Eastern Counties and attracts a very large crowd, thus it is a splendid opportunity to arouse interest in private flying. The Norfolk and Norwich Aero Club hope to co-operate with us in making this event a success. It is hoped to assemble about twelve light aeroplanes on the military aerodrome at Colchester, and the co-operation of private owners and aircraft constructors will be very welcome. Further particulars can be obtained from the secretary of this club.

The Siddeley Trophy, Presented to the Royal Aero Club by J. D. Siddeley, Esq., C.B.E., for annual competition by amateur pilots of the British Light Aeroplane Clubs.

YORKSHIRE AEROPLANE CLUB

REPORT for week ending June 23.—Flying time, 22 hrs. 25 mins. Instruction, 11 hrs. 50 min.; soloists, 8 hrs. 15 mins.; passengers, 2 hrs. 20 mins.

Instruction (with Capt. Beck): Miss Woodhead, Messrs. Ambler, Armitage Bell, Birch, Blackburn, Brown, Collins, Dujardin, Lupton, Parks, Reynolds, Rowley, Seed, Upton, Watson, Wayman.

Soloists: Messrs. Armitage, A. Crowther, Dick, Reynolds.

"A" Pilots: Messrs. Birch, Clayton, H. Crowther, Ellison, Humphries, R. Lax, Norway, Thomson. Passengers, 14.

Cold, strong winds have prevailed during the whole week. We got no flying on Sunday, our best day, but on Wednesday we managed to put in 8½ hours.

On Tuesday, Mr. Armitage, a new member, put up a very pretty show on his first solo on "Bluebirds," and on Wednesday, Mr. Arthur Crowther managed his height test after waiting several weeks for an opportunity when he could be at the aerodrome at the same time as cloud conditions allowed him to reach the necessary altitude.

Two private owners visited us this week in the shape of Mr. Cooper and Mr. Jackaman. On Wednesday the Newcastle Club honoured us with a visit for lunch *en masse* with four kites. It struck one as showing a true neighbourly spirit and also a diversion for the members from the somewhat monotonous routine of sailing round the aerodrome, and should prove of great value in advancing members' experience in cross-country and formation flying. We hope to pay a return visit in the near future.

The De Havilland Flying School, Stag Lane Aerodrome

REPORT for week ending June 24.—Total flying time, 87 hrs. 10 mins. Instruction: dual, 32 hrs. 35 mins.; solo, 13 hrs. 5 mins. Other flying, 41 hrs. 30 mins.

Flying was greatly curtailed owing to the R.A.F. practising for the Pageant at Hendon, and we are likely to be quiet until this is over, despite the fact that a great many new pupils have recently joined the school, which has grown tremendously lately, and adequately demonstrates the greatly increased confidence of the layman in civil aviation and modern light aeroplanes.

Four excellent first solos were achieved, including those by the Comtesse de Sibour and Mr. J. R. de Havilland, a cousin of the famous designer and by no means a young man. One pupil obtained his "A" licence.

Eleven new "Moths" were tested, including the first "Gipsy" Moth, which has been demonstrated to the very great satisfaction of every one concerned.

On Sunday morning, when most people were in slumberland, Miss Earhart, the famous Atlantic airwoman, flew a "Moth" at Stag Lane, and was full of praise for the baby 'plane, one of which she intends taking back to America with her.

Henderson Flying School, Brooklands Aerodrome.

REPORT week ending June 21, 1928.—Total flying time, 39 hrs. 25 mins. Dual with Col. G. L. P. Henderson, Messrs. Brooks, Bennett, Dr. Forsyth, and Dr. Wall.

Dual with Capt. H. D. Davis: Messrs. Bellamy, Oliver, Norbury, Oldmeadow, Crabtree, Taylor, Quilter, Anderson, Miss MacDonald.

Dual with Capt. W. F. Davenport: Messrs. Somerset, Matos, Knox, Swan, Bennett, Faulkner.

Mr. Bellamy has completed all his tests for his "A" Licence certificate, and Mr. Brooks has been sent solo.

AN AIR LEAGUE

AN Air League is not a fortuitous growth—it arises inevitably in a democracy for reasons somewhat on the following lines.

Democracy, as Mr. Mallock shows in his *Limitations of Democracy*, can decide humanist questions of freedom, rights and restraints (like punishing theft, or protecting inventions), but it cannot decide sensibly upon any recondite matters —which nevertheless as a sovereign power it must decide. Accordingly it does these things by proxy. (For example : re-arming with a new rifle, or deciding the desirable classes of warships.) It forms an *autocratic ad hoc* body (in these instances the War Office and Admiralty) and to that extent employs a non-democratic instrument.

So valuable are the safeguards which democracy provides for our rudimentary human rights that we keep it at the risk of using minor autocracies (popularly called bureaucracies) in those matters where democracy is, technically or otherwise, incompetent.

In self defence democracy produces groups or societies, chosen from disinterested, authoritative, and, as far as possible, well informed persons who attempt to publish truthful and instructive statements of fact, and to guide the public mind as to the deductions which may flow therefrom. Such societies are the Navy League, Air League, and countless others in other departments—transport, art, antiquities, religion, science, etc.

It is a maxim that to give people the vote makes them *tend to become educated* in the matters they vote on. This is true in air matters no less than elsewhere. The words " tend to become educated " mean in practice that there is a tendency for some body or organisation to spring up who will educate and inform them. An Air League is such a body which, amongst other duties, notes, collates and publishes such " air-facts " as bear on policy, safety, expenditure, and public *morale*. If one Air League fails to do this, another will show its head. No Air League can claim infallibility, and no Air League should be quite dependent on or hand-in-glove with the " bureaucracy " of the air. If it is, it will soon fail in its function of critic, and of supplying separate instruction, and showing the existence of alternatives to the accredited policy to the public.

The Air League's necessary policy of disseminating the full facts, [subject only to a limited secrecy, fully justified by war reasons], will usually be distasteful to certain persons and interests, and of course :—

(*a*) Sometimes an Air League's facts may be wrong (politically or technically).

(*b*) Sometimes its deductions as to policy may be wrong.

(*c*) Sometimes it may be correct, but untimely or inconvenient politically or internationally.

(*d*) Sometimes it may be right in every way but undesired by a clique, or by bureaucrats whom it incommodes, or by interests which it thwarts for the public good.

For the good or the bad of these reasons the bureaucracy may desire to weaken an Air League by keeping the public uninformed as to facts, and this is contrary to the public good.

Nevertheless, in spite of imperfections, real or potential, an Air League under some name is imperatively required ; and it should be strong. Without a strong Air League the vague opinions of the public, which are an impalpable yet uncontrollable force, may be swayed by the ever varying winds of ignorance, panic, sentiment, vanity, economy, or party politics. An Air League is also necessary, because *Aircraft policy* is that sub-section of *Defence policy* wherein analysis and prognostications by the public are peculiarly liable to error.

An Air League propagating the whole truth as far as known and demanding the facts, is essential to safety and, incidentally, to prosperity in the aircraft industry.

Democracy is no judge of strategy or tactics in the air—any more than of the classification of warships. It can, however, decide to pay for whatever can be done to counteract attacks, or render the enemy reluctant to attack, and generally it is willing to do so. Since, however, the very existence of a party government might depend upon deflecting money from air preparedness and scientific work which the public may not understand or value to more popularly attractive grants, pensions, debt charges and reliefs—party governments may have a temporary interest in *not* keeping the public informed—or in preventing the information available from being widely disseminated by an Air League. Bureaucrats may be interested in suppressing technical failures. Even minor individuals might find security from criticism by the abuse of the label " Secret " on documents which have no interest to any present or potential enemy of the country. An Air League is the enemy of these individuals. In the absence of a strong and unanimously supported Air League telling the whole truth, there will be lack of progress, of safety, of funds for preparedness, and of a backing for a Minister willing to put the lines of defence into the best order.

The lines of air defence, or preparedness are as follows :—

(1) The R.A.F. pilots and aircraft and organisation.
(2) Civil pilots, aircraft, stores, sheds, grounds.
(3) Manufacturers ready to replace wastage at full wastage rate.
(4) Sturdy *morale* of the civil population by preparedness of their mind for air attacks on their bodies.

In connection with the last item, I quote Sir S. Hoare (November 10, 1927, at Southend, *Times*, November 12).

> " In *any* war of the future, it would not be only combatants who would be engaged . . . but the whole body of the population. . . . He shuddered to think of the devastation that *would* be created . . . particularly upon the civil population of London and South-East England."

If anyone can suggest a better preparation of the population against loss of *morale* in such a case than preliminary awareness of the hazard, let him voice it. If no one has a better, this work should proceed without exaggeration and without scaremongering by the Air League.

Turning now to defence line No. 2 : The civil pilots and machines. It is clear and admitted (see Group Capt. McNeece Foster, December 8, 1927, *Times*)* " that large civil aircraft, may, particularly by night, be of the greatest value in bombing attacks "—and " that we must organise a force immediately available and sufficiently strong to *deter* any nation from its temptation of launching a blow at London."

There is only one economical way of having and keeping up a sufficiently strong bombing force of this deterrent kind—and a sufficiently full quiver of orders for manufacturers to be always ready to make up wastage—and that is to give subventions to Civil Air Transport on a scale that will enable us to have not a total of 24 transport aeroplanes as now, but maybe 240 aeroplanes (or if the foreign numbers warrant it, 2,400 aeroplanes) in current use. They will pay for their own keep in some measure by the services they render up to, say, 70 per cent., and the balance will be made up by Government in the interest of defence—in the interest of having full factories against war wastage, in the interest of having plenty of pilots, plenty of spares, plenty of mechanics and flying grounds and sheds, so that we really could *deter* others from the temptation Group-Capt. Foster speaks of.

It is remarkable that high *quality* in civil or military aeroplanes in use does not fulfil the same military function as high *quantity* in use, nor does quality neutralise quantity in the enemy's possession. In other words, if our quality is high, as it is, that is no reason or excuse for *not* having factories full of orders, a plentiful use of air transport, a large number of sheds and grounds and groundsmen, plenty of pilots and engineers, etc. ; but on the contrary, it is the strongest possible argument, except that of national peril, for adopting subvention of civil aviation to the point of equalling our nearest neighbour's numerical bombing strength in at least its civil guise.

In my view, facts and a policy such as this are suitable for widespread publication by the Air League. This publication is fundamentally helpful to British safety in the air helpful to any sane policy of the Ministry, opposed to no secret or special policy of the Ministry that can be imagined save that of self-protection against criticism, conducive to no " race of armaments " in other countries, conducive to trade and intercourse with others via the air, and to the most inexpensive possible way of getting these advantages, together with the power to *deter* others from bombarding us.

With these objects in view, an Air League is a link between all individuals, organisations, societies, and clubs interested in air safety. Reciprocally these bodies should wholeheartedly support their Air League—guide it, use it, instruct it, and help it.

MERVYN O'GORMAN.

* Group Capt. M. Foster (*Times*, December 8), British Air Staff representative at Geneva, lecturing at the R.S. Institution.

" He did not think any airman in high position would guarantee that under weather conditions favourable to the enemy, immunity could be ensured against a great city being *flooded* with gas, *set alight* with incendiary shells, and *bombed* with high explosives. . . . A member of the English General Staff some years ago, ' London for several days will be a vast raving bedlam . . . the Government at Westminster will be swept away in an avalanche of terror.'—A German general officer of repute said the war of the future will frequently have the appearance of destruction *en masse* of the entire civil population rather than a combat of armed men."

LUNCHEON TO THE ATLANTIC FLIERS

A VAST number went to the luncheon given to Miss A. Earhart, Commander W. Stultz and Mr. Lew Gordon on June 25 by the Women's Committee of the Air League of the British Empire at the Criterion Restaurant. In the chair was the Duke of Sutherland, and amongst the distinguished speakers was Mr. Winston Churchill.

The Chairman said that Miss Earhart's flight had given the newly-formed Women's Committee of the Air League the opportunity of entertaining her, for which they were grateful. They welcomed the three distinguished guests who had come in friendship and in the "Friendship," and greeted them in the same spirit. His Grace proposed the toast of "The Guests" and was supported by Lady Heath, who, in her speech, emphasised the good Mrs. Guest had done in financing the flight and thereby helping to link the two great countries together.

Miss Earhart responded in very low tones which could only be heard by the fortunate few near her. She is remarkably like Col. Lindbergh, not only in appearance but in unaffected self-possession and simple demeanour. She mentioned her little opportunity of seeing what England was doing in aviation, but thought we were far ahead of America in many ways, particularly in the number of passengers carried and the use of light aeroplanes. She would take back to the United States much learned from us, and would try to stir up enthusiasm such as we had regarding flying clubs.

The Atlantic airwoman also thought that we had angelic farmers who did not mind one landing anywhere in their fields. She was afraid that their country gentlemen were not so amiable, for they had to pay for any cabbages disturbed.

In America she thought they were on the point of developing flying more than ever, for capital was coming in and in the next few years she anticipated something comparable to what we were doing. Capital had not been very intelligent in the past because the management of affairs had been handed to expert pilots who, perhaps, could not manage business.

Commander Stultz also spoke quietly in giving his brief account of the flight from the start at Boston with a land chassis and the preliminary hop to Trepassey, where the floats were fitted. Rough water delayed the start and bad weather reigned throughout over the ocean. When at last after hours of blind flying a hole in the fog was sighted a small fishing vessel came into view which indicated the presence of land. Shortly after, the liner *America* was seen 72 miles east of Queenstown, but it puzzled him by seeming to be steering either north or south. He naturally wondered what steamship line plied up and down the Atlantic instead of across. He did not know then that Ireland had been crossed by him in the fog.

Mr. Gordon, the mechanic, of whom it was mentioned that he would be married on his return to America, responded in a few low words, expressing appreciation of the hospitality shown them in this country.

Sir Phillip Sassoon spoke in eulogy of the flight, and pointed out how each Atlantic flight was gradually stripping the feat of its danger. He referred to the successful use of the multiple engines, and was confident that a machine would soon be evolved that would cross the Atlantic with as little hazard as today one crosses the Channel.

Mr. Winston Churchill, who hurried in just after the luncheon, with Capt. F. E. Guest, to express his appreciation to Miss Earhart and her companions, also emphasised the use of the multiple engines. With that characteristic of the flight he coupled the marvellous navigation of Commdr. Stultz, who, in spite of weather conditions, had managed to steer a course to within a few miles of the actual point that he was making for.

Commander W. Stultz, the Atlantic pilot, at Manchester on June 24, when he placed a wreath on the grave of Sir John Alcock. With him is Miss Brown, of the Lancashire Aero Club, and the Club Instructor.

Air Vice-Marshal Sir Sefton Brancker (D. of C.A.) said that pioneering efforts over the land were now not necessary. He believed we should have an air service between London and New York in the near future, and that if this country and the United States co-operated they could keep the peace of the world. He was not certain as to what were the immediate intentions of the "Friendship" seaplane, but he thought it was to make some sort of tour, and he would therefore suggest to Mrs. Guest that the British and American flags be painted on the fuselage.

Lady Astor, M.P., who was the final speaker, proposed the toast of "The Chairman," with her usual verve and wit. Of the guests' feat she said it proved once more that it took more than courage to do great things; it required character. She was glad, too, that it was not sensation-mongers who accomplished such deeds.

Amongst those present were Col. the Master of Sempill, Brig.-Gen. P. R. C. Groves, Mrs. Groves, Sir Charles Wakefield, Sir Alan Cobham, Col. Thwaites, Sir John Shelley Rolls, Lady Shelley Rolls, Sir James Heath, Mrs. Guest, Miss O'Brien, Lady Ellibank, Dame Dudson Lyall.

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Luncheon to East to West Atlantic Airmen

THE Royal Aeronautical Society, the Royal Aero Club, the Society of British Aircraft Constructors and the Air League of the British Empire will give a luncheon at the Savoy Hotel on Monday, July 2, 1928, at 1.15 p.m., to welcome Baron Von Huenefeld, Captain Hermann Koehl and Commandant James Fitzmaurice after their east to west flight across the Atlantic. Tickets £1 1*s*. each, inclusive of wines, cigars, etc. Applications should be made direct to the Royal Aero Club, 3, Clifford Street. Members of the above societies may be accompanied by ladies.

The Royal Air Force Memorial Fund

THE usual meeting of the Grants Sub-Committee of the Fund was held at Iddesleigh House, June 14. Lieut.-Comdr. H. E. Perrin was in the Chair, and the other Members of the Committee present were:—Mrs. L. M. K. Pratt-Barlow, O.B.E.; Sqdn.-Ldr. Douglas Iron, O.B.E. The Committee considered, in all, 15 cases, and made grants to the amount of £182 7*s*. 1*d*.

Home Orders

IMPERIAL AIRWAYS has placed an order with Armstrong-Siddeley Motors Ltd., for three more air liners of the Silver Wing class fitted with three "Jaguar" radial air-cooled, 385 h.p. engines. They will embody improvements to put the cruising speed up to about 95 m.p.h., carry more load, and make the normal range in still air 400 miles. The latest Marconi A.D. 8 set will be installed for telephonic or telegraphic use with a range of 200 to 250 miles in favourable conditions.

S. SMITH AND SONS' ANNUAL SPORTS

IN perfect weather—a typical English (pre-war) Summer day—S. Smith and Sons (M.A.), Ltd., of Cricklewood, opened their new sports ground and pavilion at Brook Road, North Circular Road, Hendon, on Saturday, June 23, when, prompt to schedule time (11 a.m.), Mrs. A. Gordon Smith performed the opening ceremony.

As always on these occasions at "Smiths," the heads of the firm all entered into the spirit of the day and spared no energy to see that all had a real first-class sports day. Mr. A. Gordon Smith, the President, Mr. W. Henderson Cleland, M.C., Vice-President, and Mr. C. W. Nichols were very much in evidence all through, while a word or two of congratulation should be meted out to Mr. J. E. Chorlton and Mr. B. Havilland for the manner in which all the arrangements for everyone's comfort were organised.

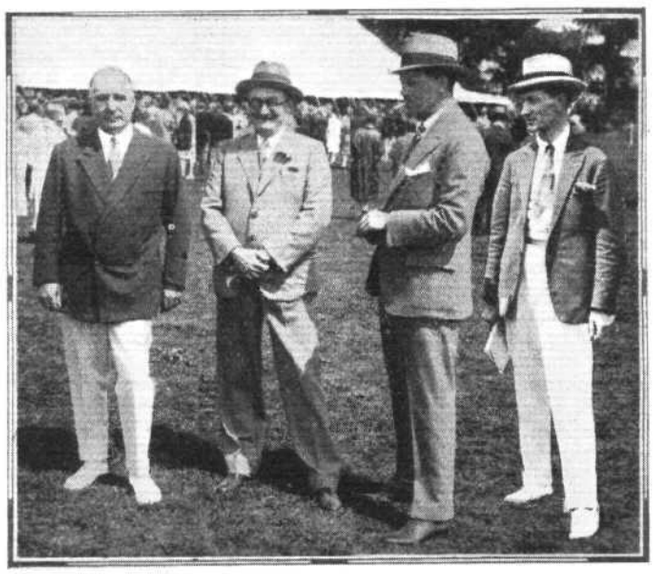
Opportuity was taken of the occasion to present certain prizes to members of the staff in connection with the everyday work of the firm. For instance, under a scheme to encourage the junior employees to attend Evening Continuation Classes, the management awarded three prizes for the highest number of marks obtained. These three prizes were presented, by Mr. Joseph S. Bridges, M.A., B.Sc., LL.D., (Willesden Council Chief Educational Officer), to Miss Parker, Mr. Lee and Mr. Perkins. Prizes were also given for the highest aggregate award for "Cleanest Machines" and general efficiency. These went to Miss Brooks, Miss Taylor and Mr. Hillier.

An elaborate programme, commencing at 11.15 a.m. and continuing until well in to the evening, was provided, and carried through without a hitch from start to finish. In addition to some 44 competition events—for young and old—there were 15 side shows which were much appreciated and well patronised—especially the "Helter Skelter."

During the proceedings a programme of music was given by the Willesden Town Silver Prize Band, under the direction of Mr. C. McManus.

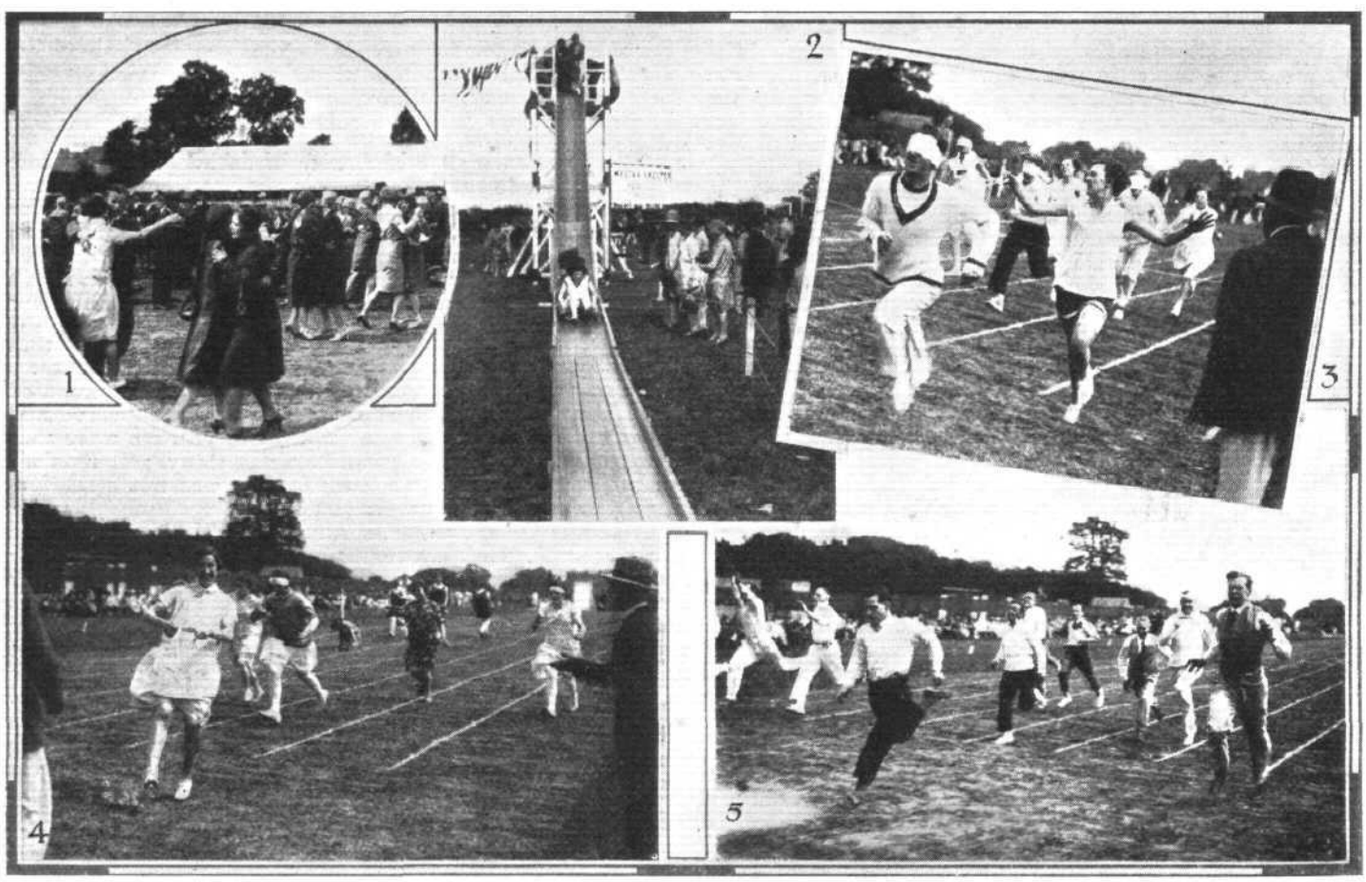
Dance music was also provided, so that those who cared to could indulge in dancing.

Unfortunately, we have not the space this week to describe all the happenings of this extremely enjoyable day, and can only conclude by congratulating all concerned upon the remarkable success of the programme provided, both as regards quantity and quality.



["FLIGHT" *Photograph*

AT "SMITH'S" ANNUAL SPORTS: The "Heads" took an active part in seeing that everyone enjoyed themselves. Above we see, reading from left to right—Mr. A. Gordon Smith, Mr. W. Henderson Cleland, Mr. C. W. Nichols, and Mr. J. E. Chorlton.



["FLIGHT" *Photographs*

AT "SMITH'S" ANNUAL SPORTS: A big and varied programme was provided at the new Sports Ground at North Circular Road, Hendon. Some of the many events: (1) and (2), Two of the "Side Shows." Dancing and the "Helter Skelter." (3) The Blindfold Race, Miss M. Lawther and Mr. S. May winning. (4), Miss I. Harman winning the Egg and Spoon Race. (5), The 100-yards Management and Foremen Handicap: I. Harper, winner.

FLIGHT

THE ROYAL AIR FORCE

London Gazette, June 19, 1928

General Duties Branch

Pilot Officer R. J. Stone is confirmed rank and promoted to rank of Flying Officer (Jan. 13) (substituted for *Gazette*, Mar. 6.) Flight-Lieut. C. McC. Vincent, D.F.C., is placed on half-pay, Scale B., Mar. 29 to Mar. 31 inclusive (substituted for *Gazette*, Feb. 14). The following cease to be attached to R.A.F. on return to Naval duty (June 16); Lieut. the Hon. J. M. Southwell, R.N., Flying Officer, R.A.F.; Lieut. R. G. Poole, R.N., Flying Officer, R.A.F. Mate S. R. H. Davenport, R.N., Flying Officer, R.A.F., relinquishes temp. commn. on return to Naval duty (June 4). Flying Officer R. R. Money is transferred to Reserve, Class A (June 14). The short service commn. of Pilot Officer on probation H. R. R. Ackerley is terminated on cessation of duty (June 6).

Accountant Branch

The following are granted perm. commns. as Pilot Officers on probation, with effect from, and with seniority of, June 11: M. L. Jones, H. A. Frost, T. C. Reep, C. V. Mears, R. Trippett.

RESERVE OF AIR FORCE OFFICERS

General Duties Branch

E. W. Mackay is granted commn. in Class AA (ii) as Pilot Officer on probation (June 7). The following Pilot Officers on probation are confirmed in rank (June 13): R. Anderson, J. M. Greenwood, J. A. C. Northway. Pilot Officer T. Herbert is transferred from Class BB to Class C (June 8).

AUXILIARY AIR FORCE

General Duties Branch

The following to be Pilot Officers: No. 600 City of London (Bombg.) Squadron.—D. B. H. Coates (May 9); G. C. Bonner (June 1). No. 602 City of Glasgow (Bombg.) Squadron.—A. H. C. Gibson (May 21).

ROYAL AIR FORCE INTELLIGENCE

Appointments.—The following appointments in the Royal Air Force are notified:—

Medical Branch

Flying Officers: J. H. Cullinan, to Aeroplane & Armament Experimental Estab., Martlesham Heath, 2.7.28. T. A. Edwards, M.B., to No. 3 Flying Training Sch., Grantham, 2.7.28. A. R. French, to R.A.F. Base, Gosport 2.7.28. P. J. Nyhan, M.B., to No. 2 Flying Training School, Digby, 2.7.28 B. A. Porritt, M.B., to No. 5 Flying Training School, Scaland, 2.7.28.

Flying Officers (Dental): A. P. McClare, to R.A.F. Station, North Weald, 11.6.28. H. D. Humphreys, to R.A.F. Depot, Uxbridge, on appointment to a temp. commn., 1.6.28.

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ROYAL AIR FORCE OFFICERS

New Organisation

THE Air Ministry announces certain changes in organisation which, it is claimed, will not only make for greater efficiency in the Royal Air Force, but will improve the prospects of both permanent officers and airmen without any additional cost to the State. The changes are not revolutionary in character, but are a development which is considered advisable as dictated by experience.

The problems which received consideration are: (1) to fulfil the obligation of providing an attractive career for all permanent officers by increasing the opportunities for early promotion; (2) to give increased opportunities of holding responsible posts to airmen; (3) to overcome a shortage of officers with from five to ten years' service, who usually hold the rank of flight-lieutenant; (4) to provide a sufficiency of pilots who cannot expect promotion to high rank, without unduly swelling the numbers of short service officers; (5) to provide a reserve of officers, which entails the employment of a certain minimum of short service officers.

Airmen Pilots

These problems have been tackled in the following manner:—To take Nos. (4) and (5) first, for some years past airmen-pilots have been employed. Specially selected airmen are trained as pilots, and are then promoted to sergeant. They serve as pilots for five years, and then return to their ground duties, retaining the rank of sergeant. This scheme has resulted in a substantial reduction in the number of short-service officers.

In this connection two questions have been asked: (1) Why are more airmen-pilots not employed? and (2) Why are airmen not allowed to fly for more than five years? The answers given are: (1) that the number of officers required in the force is not dependent on flying duties, but on other duties, and that as many airmen pilots as are possible are already employed; (2) that to let them fly for 10 years would reduce the number of short service officers to a level which would unduly deplete the reserve.

Posts Graded-up and Graded-down

Problems (1) and (2) are now being met by a system of grading-up certain posts and grading-down others. Certain appointments now held by, say, flight-lieutenants are graded as sufficiently important to be held by squadron-leaders; and so on up the scale. Other appointments now held by junior officers are to be graded down and will be held by specially selected warrant officers; over one-fifth of the specialist appointments are being graded down. This reform will certainly be popular with both commissioned and other ranks. The expense of the grading-up is expected to be balanced by the saving on the post graded down.

Medium Service Officers

Problem No. (3), the shortage of flight-lieutenants is being met by the introduction of a new class of officer, known as "medium service officers." Strictly speaking, the class is not new. What is being done is to invite a number of short service officers to prolong their service from five to 10 years. On transference to the reserve these officers will receive a gratuity of £1,000.

In this connection it should be mentioned that the Air Ministry has started an organisation for helping short service officers to find civil employment on leaving their squadrons, and it is stated that good work in this direction has already been done. The present programme of expansion will be completed in 1935. If all work done by officers during the war were to continue to be done by the commissioned ranks, in 1935 the number of officers would be 3,650. As a result of the changes, some 500 of this number will be airmen-pilots, 150 will be warrant officers or civilians, and the balance of 3,000 officers will be made up as follows: short service (including officers attached or seconded from the Navy and Army), 1,150; medium service, 100; permanent, 1,750.

It seems certain that the changes mentioned above are sound in so far as they add to the attractions of the Service for permanent officers and airmen. The points which are doubtful concern the prospects of non-permanent officers and the reserve. A reserve to a fighting force often presents difficulties. Probably the Royal Naval Reserve is in the best position, because the mercantile marine is a very fine and healthy profession, and it provides a natural reserve for the Navy. The Army has had difficulties in this matter; and they were eloquently touched on by Kipling in his poem "Back to the Army again."

The Royal Air Force is in a particularly difficult position for two reasons. Civil flying is not yet a well-developed profession. It does not provide a sufficient natural reserve to the Air Force, and it cannot absorb and find employment for the numbers of short service officers who have to leave their squadrons and go on to the reserve. It is doubtful whether civil flying in this country ever will be able to perform this function. Empire air routes will tend rather to help the reserves of the Dominion air forces.

At the same time, unless a greatly extended employment of airmen pilots is found possible, the Air Force must of necessity depend largely for its flying personnel on non-permanent officers. It would be quite impossible, on financial and on every other ground, to offer promotion to high rank to all the pilots which the force requires. Consequently, the permanent cadre must be restricted to the number to which attractive careers can be offered, and quite rightly the Air Council feels that its obligations to its permanent officers must come first.

It seems certain that some short service officers have suffered hardships on leaving their squadrons. It is doubtful whether such hardships will not be accentuated in the case of medium service officers. Of course, the men knew what terms were offered, and they made their bargain with their eyes open; though each perhaps hoped he would get one of the very rare grants of a permanent commission. If, as time goes on, the short service and medium service commissions are found to be really bad bargains, the supply of candidates of the right class will, by the operation of a natural law, dry up. Then the Air Council will be obliged to look elsewhere for flying personnel, and an increased number of airmen pilots seems the only solution. As for the reserve—well, perhaps the weather in Great Britain will improve and make possible a vast extension of inland air services.

F. A. de V. R.

PERSONALS

Married

The marriage between FLT.-LIEUT. RONALD IRVING BELL, son of Mr. and Mrs. Irving Bell, of Denton Grange, Eastbourne, and MISS DOROTHY RUSSELL GREGG, daughter of Mr. R. Russell Gregg and of the late Mrs. Russell Gregg, of Buenos Aires, took place at the Parish Church, Stogursey, Somerset, on June 16.

Capt. CHARLES F. M. CHAMBERS, D.F.C., was married on June 16, at St. Martin-in-the-Fields, Trafalgar Square, to MARY BARBARA, elder daughter of W. LINCOLNE SUTTON, F.I.C., Eaton, Norwich.

The marriage took place on June 12, at St. Giles's Church, Bradford-on-Tone, Taunton, of Sqdn.-Ldr. JOHN BERESFORD COLE-HAMILTON, son of Mr. and Mrs. John Cole-Hamilton, of Salisbury, to HILDA VIOLET LESLIE, younger daughter of Mr. and Mrs. C. LESLIE FOX, of Rumwell Hall, Taunton.

On June 12, at St. Mary's, Horsell, Woking, Flying Officer ALFRED VAVASOUR HAMMOND, R.A.F., Cairo, Egypt, eldest son of Rev. J. V. Hammond, Vicar of Holy Trinity, Ayr, and Mrs. Hammond, was married to MARJORIE, second daughter of Mr. and Mrs. GERALD SWETE, of "Dennington," The Ridgeway, Woking.

The marriage took place on June 18, at St. Andrew's, Biggleswade, of Mr. ALLISTON TEMPLE CLOUGH HAZLEDINE, R.A.F., eldest son of Capt H. St. John Clough Hazledine, R.I.F., and Mrs. P. J. C. Hazledine, of Burlton Hall, Salop, and Berryfields, Keysoe, St. Neots, Hunts, and Miss ROMA EUNICE JEAN BEATTON, daughter of Dr. Gilbert T. Beatton and Mrs. A. E. Beatton, of the Manor House, Biggleswade. A guard of honour was formed by R.A.F. officers with aeroplane propellers. Mr. F. A. Britton, R.A.F., was best man.

Death

LIEUT. RAYMOND ARTHUR ALDRIDGE, R.N. (Flying Officer, R.A.F.), 403 (Fleet Fighter) Flight, H.M.S. *Hermes*, China, who was killed while flying at Wei-hai-wei on June 20, was the eldest son of Arthur and Claire Aldridge, Pachesham Gates, Leatherhead, Surrey. His age was 27.

Mr. N. JORDAN DARNELL, agent to the Hon. K. Mackay, Cawston House, Rugby, who was killed on June 15 when his motor-cycle skidded in Bilton Village, Rugby, was a wing-commander in the Royal Air Force during the war and was wounded several times.

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Openings for Pilots, Reserve of Air Force Officers

THE Air Ministry announces:—Fifteen vacancies are available for candidates for training as pilots in the Air Force Reserve. No previous flying experience is necessary, but applicants must be between the ages of 18 and 25 and of good education and physique. After interview and medical examination, selected candidates are nominated to commissions as pilot officers on probation and, subject to satisfactory reports, are confirmed in rank after 12 months. Promotion to flying officer normally takes place after 18 months' service.

Commissions are granted in the first place for five years, but at the end of this period extension may be allowed at the discretion of the Air Council for further periods each of not more than five years. Flying training is carried out at civil flying schools at Edgware and Bristol and consists of a course not exceeding three months (preferably taken continuously) during the first six months of service, six hours' solo flying (within a maximum period of 10 days' training) during the second six months, and 12 hours' solo flying (within a maximum of 20 days' training) in each subsequent year's service.

When undergoing training an officer receives, generally speaking, the same pay and allowances as an officer of the same rank on the active list. The present rates of pay are 15*s.* a day for pilot officers and 18*s.* 10*d.* a day for flying officers. Allowances for officers of these ranks amount to about 7*s.* 9*d.* a day. In addition, an annual retaining fee of £30 is payable, subject to compliance with the regulations. Application forms and further details can be obtained upon application to the Secretary (S. 7 (c)), Air Ministry, Adastral House, Kingsway, London, W.C.2.

A SOUVENIR OF THE AFRICAN SURVEY FLIGHT: A handsome silver salver presented, for Sir Charles Wakefield, by Lady Maud Hoare, to Sir Alan and Lady Cobham at the banquet given in their honour at the Savoy Hotel on June 19. The salver is engraved with a record of the Sir Charles Wakefield 22,000-miles flight of survey round Africa by Sir Alan in the Short-Rolls-Royce "Singapore" flying-boat.

IMPORTS AND EXPORTS

AEROPLANES, airships, balloons and parts thereof (not shown separately before 1910).

For 1910 and 1911 figures see FLIGHT for January 25, 1912.
For 1912 and 1913, see FLIGHT for January 17, 1914.
For 1914, see FLIGHT for January 15, 1915, and so on yearly, the figures for 1927 being given in FLIGHT, January 19, 1928.

	Imports.		Exports.		Re-Exports.	
	1927.	1928.	1927.	1928.	1927.	1928.
	£	£	£	£	£	£
Jan. ..	1,850	1,220	49,021	157,598	—	330
Feb. ..	679	1,772	63,080	118,622	—	345
Mar. ..	7,087	4,805	106,478	125,901	2,270	1,307
April ..	822	2,904	71,190	134,126	785	3
May ..	1,258	2,513	82,708	118,804	640	640
	11,696	13,214	372,477	655,051	3,695	2,625

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PUBLICATIONS RECEIVED

Meteorological Office, Air Ministry: Report of the Meeting in Leipzig, Aug. 29—Sept. 3, 1927, of the Commission for the Exploration of the Upper Air. International Meteorological Organization. H.M. Stationery Office, Kingsway, London, W.C.2. Price 3*s.* 6*d.* net.

Aerial A.B.C. and Commercial Air Line Gazetteer, April, 1928. Aerial A.B.C., Ltd., 4, Duke Street, Adelphi, London, W.C. 2. Price 1*s.*

Railway and Tramway Rolling Stock. The British Aluminium Co., Ltd., Adelaide House, King William Street. London, E.C. 4.

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NEW COMPANIES REGISTERED

ERIN AIRCRAFT, LTD.—Capital £1,000, in £1 shares. Manufacturers of and dealers in aircraft of all kinds, to acquire patents in connection with improvements to aircraft and to carry on an air service for passengers or goods, mails, etc. Provisional directors, J. L. O'Sullivan, S. C. Macklin and W. Ramsay.

NATIONAL PLYWOOD CORPORATION, LTD.—Capital £100, in 1*s.* shares. Manufacturers of and dealers in all kinds of veneered and other plywood for panel, aeronautical and other work, etc. Secretary, H. E. Steele, 78, New Oxford Street, W.C.1.

ESSEX FLYING SERVICES, LTD., 39, Crown Street, Brentwood. Capital £400, in £1 shares. Objects: to establish an air transport service, to make arrangements for pleasure cruises, etc. Permanent director, A. H. Matthews.

THE "CATSEYE" (PARENT) CO., LTD., 68, Victoria Street, Westminster, S.W.1.—Capital £50,000, in 120,000 8 per cent. cumulative participating preferred ordinary shares of 5*s.* each and 400,000 deferred shares of 1*s.* each. Under agreement (1) with F. H. Le Sueur and (2) with the National Commercial Corporation, Ltd., to acquire the trade mark "Catseye." Manufacturers of and dealers in spectacles and scientific instruments and appliances for protecting or shielding the eyes of motorists, aviators, etc. First directors, Lieut.-Col. Lord Dorchester, O.B.E., J.P.; Lieut.-Gen. Sir Arthur T. Sloggett, K.C.B.; S. F. Edge; Lieut.-Col. C. Jarrott, O.B.E., H. Tanner, F.R.I.B.A.

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AERONAUTICAL PATENT SPECIFICATIONS

Abbreviations: Cyl. = cylinder; i.c. = internal combustion; m. = motor. The numbers in brackets are those under which the Specifications will be printed and abridged, etc.)

APPLIED FOR IN 1927

Published June 28, 1928

10,489. E. S. ANDREWS (J. Pintsch Akt.-Ges.). Light signals for aerial navigation. (291,578.)
11,333. F. H. ROYCE. Magneto-driving mechanism. (291,584.)
21,200. SERVO-FREIN DEWANDRE SOC. ANON. Power-steering for self-propelled machines. (276,006.)
25,804. J. T. RENNISON. Propellers. (291,659.)

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